Perceptual Video Quality Assessment Tool

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Abstract

Subjective video quality is a subjective characteristic of video quality. It is concerned with how a video is perceived by the viewer and designates his or her opinion on the particular video sequence. Subjective video quality tests are quite expensive in terms of time (preparation and running) and human resources. The main objectives of this testing is how the human observes the video quality since they are the ultimate end user.

There are many ways of testing the quality of the videos. We have used ITU-T Recommendation P.910.
1. Introduction

Digital pictures are progressively finding their path into the daily lives of people via the explosion of video applications such as digital television, digital film, internet videos, video teleconference, video sharing services such as YouTube, Video on Demand (VoD), and home televisions and then along. Digital videos typically pass through various processing stages before they reach the end user of the video. Most often, this end user is a human observer. The effect of most processing stages is to degrade the quality of the video that passes through it, although certain processing stages (for example, in consumer devices) attempt to improve quality. Methods for evaluating a video quality plays a critical role in quality monitoring to maintain Quality of Service (QoS) requirements; performance evaluation of video acquisition and display devices; evaluation of video processing systems for compression, enhancement, error concealment and so on; and finally, perceptually optimal design of video processing systems. The only reliable method to access the video quality perceived by a human observer is to ask human subjects for their opinion, which is termed subjective video quality assessment (VQA). Subjective VQA is impractical for most applications due to the human involvement in the process. However, subjective VQA studies provide valuable data to assess the performance of objective or automatic methods of quality assessment. In this paper, we first present a study that we conducted to assess the subjective quality of video. Our study included 10 uncompressed reference quality of the video that is downloaded from YouTube and were of random qualities. Each video is assessed by the available number of human subjects (one video after another). The subjects scored are stored in the database on the local server.

2. Objectives

The thesis was undertaken with the objective to develop a tool to test the subjective perceived quality of video sequences. Absolute Category Rating (ACR, explained on page 8) is the ultimate method to carry such test in PHP environment because of the hidden reference. For test video sequences MPEG-4 videos were uploaded to the server. The objectives of our research include:

- Study of subjective video quality measurement requirements
- Study of PHP and its application on quality assessment
- Develop a Quality Assessment Tool in PHP, HTML and JavaScript.
- Generating and uploading test videos with different parameters as frame rate, resolution, bit rate, etc.
- Use the test videos in conducting surveys in the developed Quality Assessment Tool.
- Gather results, conclusions and suggestions based on the survey.
3. Experimental Setup

In this paper, PHP, HTML5, MYSQL, CSS and JavaScript are used to play the video on the webpage and store the score provided by the subjects in the database.

![Diagram](image_url)

Fig. 1 the process of recording the opinion of a subject in the database

4. Theory

This section shows, video quality factors in video services and the typical subjective quality assessment techniques used for digital video content.

4.1. Factors affecting the video quality

There are wide varieties of factors that affect the quality of video communication services. These ranges of quality factors associated with the source video, to quality factors associated with the user terminal on which the video content is viewed. Quality factors relating to the source video include the shooting conditions (focus, brightness, contrast, etc.) and camera performance. Next, this source video is coded, and the quality of the coded video varies depending on the choice of codec (MPEG2, MPEG4, H.264, etc.), the coding parameters and so on. Specific examples of coding parameters include the coded bit rate, the...
spatial resolution (VGA, QVGA, CIF, QCIF, etc.), and the temporal resolution (frame rate). When the coded video data is transmitted over an IP network, the transmission delay of IP packets can fluctuate depending on how congested the network is, and some IP packets may loss, resulting in further degradation of video quality. Finally, the video quality is affected by factors such as the ability of the user's terminal to decode and display the coded video data.

### 4.2. International standardization of subjective assessment methods

Subjective quality assessment methods are the most fundamental way of assessing the quality of experience (QoE) of video communication services. Subjective quality assessment involves visual, psychological tests where human evaluators are subjected to a video stimulus and assess its quality based on their own subjective judgment. Specialist knowledge and evaluation equipment are needed to plan and implement the tests, including the selection of a video presentation method and a suitable way of measuring the assessments, and adjusting the viewing conditions.

The International Telecommunication Union (ITU) is an international standards organization that has published recommendations relating to the subjective assessment of video quality to regulate the viewing environments and viewing criteria with the aim of obtaining repeatable quality assessment results. The principal ITU-T/R recommendations relating to video quality assessment methods are listed in Table Below. The BT series of recommendations published by ITU-R (Radiocommunication Sector) relate to subjective quality assessment methods for TV pictures, and the J/P series of recommendations by ITU-T (Telecommunication Standardization Sector) are also applicable to telecommunication applications (cable TV and multimedia).

<table>
<thead>
<tr>
<th>Recommendation No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT.500</td>
<td>Methodology for the subjective assessment of the quality of television pictures</td>
</tr>
<tr>
<td>P.910</td>
<td>Subjective video quality assessment methods for multimedia applications</td>
</tr>
<tr>
<td>J.140</td>
<td>Subjective picture quality assessment of digital cable television systems</td>
</tr>
<tr>
<td>BT.710 HDTV</td>
<td>Subjective assessment methods for image quality in high-definition television</td>
</tr>
<tr>
<td>BT.1129 SDTV</td>
<td>Subjective assessment of standard definition digital television (SDTV) systems</td>
</tr>
<tr>
<td>BT.802/BT.1210</td>
<td>Test materials to be used in subjective assessment</td>
</tr>
</tbody>
</table>

**Table. Principal ITU-T/R recommendations relating to subjective video quality assessment methods**

In our paper while performing subjective video quality assessment, we chose P.910 because of its effectiveness, which is in turn is because of its simplicity.
4.3. **Subjective assessment test conditions**

To obtain repeatable quality assessment results, it is necessary to regulate the test conditions such as the assessment video. Here, we describe the assessment video and test subjects. The assessment method is discussed in the following section.

4.3.1. **Assessment video**

The quality of coded video varies with the pattern (detail) of the video content and the amount of movement in the picture. It is therefore important to use the same assessment video to enable a fair comparative assessment of, for example, the quality achieved by various different coding schemes. For this purpose, a set of assessment video content has been prescribed as an international standard. This standard video content takes numerous video characteristics into consideration, including the picture detail, movement and camera work.

4.3.2. **Test subjects**

The quality experienced by subjects (subjective quality) can vary widely, even when they are watching the same video. To reduce the variability of the assessment results, a single video sample must be scored by a large number of subjects. ITU-R recommendation BT.500 stipulates that the subjects should consist of at least 15 non-experts (people who are not routinely involved in work relating to the quality of TV pictures and have not had much experience of assessment tests).

4.4. **Typical subjective assessment methods**

The typical methods used for subjective assessment of digital video quality are described here.

1. ACR method (Absolute Category Rating)
2. ACR-HR (Absolute category rating with hidden reference)
3. DCR (Degradation Category Rating)
4. PC (Pair Comparison)
5. DSCQS (Double Stimulus Continuous Quality Scale)
6. SSCQE (Single Stimulus Continuous Quality Evaluation)
7. SAMVIQ (Subjective Assessment Methodology for Video Quality)

**Note:** We use the ACR method in our thesis for the subjective video assessment.
4.4.1. ACR method (Absolute Category Rating)

The ACR method set forth in ITU-T recommendation P.910 (also known as the single stimulus method) is one of the most widely used methods for assessing the quality of telecommunication services. As shown in Fig. Below, in the ACR method the subjects watch the assessment video for about 10 seconds, and during the subsequent interval of up to 10 seconds they assess the video on the five-grade quality scale shown in Table Below. In the assessment results, the number of votes by the subjects in each category is weighted by the assessment scores and expressed as a mean opinion score (MOS). Since there is known to be a sequence effect whereby the video quality assessment scores are affected by the quality of the video viewed previously (a video with slight quality degradation tends to achieve a higher evaluation score when it is viewed after a video with very poor quality compared with when it is viewed after a video of very high quality), it is also necessary to negate this effect by, for example, changing the presentation sequence of the assessment video randomly for each evaluator, or repeating the evaluation with the same videos in a different sequence.

Since there is no quality assessment standard in the ACR method, the assessment results are strongly affected by the scope of variation in the quality of the video being assessed in the test (the framework of the assessment test). Consequently, care must be taken when comparing the assessment results of different tests.

The ACR scale is evaluated based on numbers that are assigned to the individual items, where Excellent equals to 5 and Bad equals to 1. The average numeric score over all experiment participants, for each test condition that was shown, is called the Mean Opinion Score.

<table>
<thead>
<tr>
<th>Score</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Excellent</td>
</tr>
<tr>
<td>4</td>
<td>Good</td>
</tr>
<tr>
<td>3</td>
<td>Fair</td>
</tr>
<tr>
<td>2</td>
<td>Poor</td>
</tr>
<tr>
<td>1</td>
<td>Bad</td>
</tr>
</tbody>
</table>

Table  5-grade quality scale

Fig 2. Stimulus presentation in the ACR method (Src: NTT Network Technologies)
4.5 Architecture Design of Subjective Video Quality Assessment Tool

The architecture design corresponds with all the elements embedded as a set to perform a required process (i.e. ACR). The entire software prototype is developed in PHP language. The software elements included in this tool comprises of database elements, process control elements, HTML 5 player integration files with relevant packages for the entire process of ACR setup.

5. Design of the database

The database is named as 'final' and it consists of four tables. It is designed according to the requirement.

The list of the designed database tables is as follows:

- Admin Table
- Members Table
- Video Table
- Ratings Table

The names of the tables are given corresponding to the data to be stored in them while the system is running. During the session, these tables are created, accessed and updated. Tables are created for data to be stored, e.g. username, age, gender must be saved in Members Table. The data can then be retrieved from the table and employed for further processing like adding survey results to particular user from the Rating Table. The tables can also be updated.

5.1. Admin table

<table>
<thead>
<tr>
<th>Admin Table</th>
<th>id</th>
<th>Integer (15)</th>
<th>PRIMARY KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>username</td>
<td>varchar</td>
<td>255</td>
<td>NOT NULL</td>
</tr>
<tr>
<td>password</td>
<td>varchar</td>
<td>255</td>
<td>NOT NULL</td>
</tr>
</tbody>
</table>

- id is auto increment of primary key in integer type.
- username is pre specified username of the admin to be entered.
- password is the key to authenticate for admin to give complete privileges to use the tool.

5.2. Members Table

<table>
<thead>
<tr>
<th>Members Table</th>
<th>Id</th>
<th>integer (15)</th>
<th>PRIMARY KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username</td>
<td>varchar</td>
<td>255</td>
<td>NOT NULL</td>
</tr>
<tr>
<td>Password</td>
<td>varchar</td>
<td>255</td>
<td>NOT NULL</td>
</tr>
<tr>
<td>FName</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>---------------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>LName</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
<td></td>
</tr>
<tr>
<td>DOB</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
<td></td>
</tr>
</tbody>
</table>

- id is auto increment of primary key in integer type.
- username is the name of the user to be entered.
- password is the key to authenticate for the user to give complete privileges to use the tool.
- FName and LName the first and last name of the user respectively.

### 5.3. Videos Table

<table>
<thead>
<tr>
<th>Videos Table</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>integer (15)</td>
<td>PRIMARY KEY</td>
</tr>
<tr>
<td>vidname</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
</tr>
<tr>
<td>url</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
</tr>
<tr>
<td>size</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
</tr>
</tbody>
</table>

- id is auto increment of primary key in integer type.
- The name of the uploaded video will be saved in vidname column.
- url column consists the random number generated for the video file once it is uploaded.
- size column consists the size of the uploaded file.

### 5.4. Ratings Table

<table>
<thead>
<tr>
<th>Rating Table</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>integer (15)</td>
<td>PRIMARY KEY</td>
</tr>
<tr>
<td>rating</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
</tr>
<tr>
<td>vidname</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
</tr>
<tr>
<td>vidurl</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
</tr>
<tr>
<td>username</td>
<td>varchar (255)</td>
<td>NOT NULL</td>
</tr>
</tbody>
</table>

- id is auto increment of primary key in integer type.
- The ratings given by the users will be saved in rating column.
- The name of the video that is being tested will be saved in vidname column.
- vidurl is the random number of the video file which the user is playing.

### 6. Modes of the Tools

There are two interface modes in this tool - Admin and User.
6.1. Admin Mode

For admin to log in, click on the log in link, which consists of login form for the user, the link to register for the new user and the link, log in for the admin.
To log in as the admin, click on the admin log in link after clicking there the new window will open with the username and password form for the admin. When the admin logs in successfully, the new page adds videos will appear. This page consists of the link to upload new videos and the uploaded videos will appear just below the list of uploaded files.
Admin also has the access to watch the ratings given by the user for each video. After everything is done admin should click the log out link to end the session. The pages to which an admin has access to are:

- Home
- Admin login
- Add video(s)
- View Data
- Log out

6.2. User Mode

To start the survey, click on the log in link if you are the member, but if you are not click on the register link. The register page consists the form which the user should fill after filling it click on register. If everything goes well, 'user registration successful' message will appear. After that the user should go to the log in link, click it and fill the form. When you log in successfully the members' page appear which consists of 5 point table look at the table and understand the rating point.
To view the list of the videos click on the video link and to start watching them click on the view video link. After that the video starts playing, when the video finishes give the rating to it for its quality between 1 to 5. When the user gives the rating for the first video after a few seconds interval the new video from the list starts playing, do the same with this video also till 'thank you' message appears which means the previous video which was played was the last one. After this click on the log out link, this will end the session for the user. The pages a user access are:

- Home
- Log in
- Register
- Members' area
- Video(s)
- Video Playback
- Log out
7. GUI Implementation

7.1. Home page
7.2. Admin Login Page

Log In
Please log in to continue

Admin Login

Admin Login

Username*: 
Password*: 
Login

Not registered yet?
Click here to register.
7.2. Video uploads page

Add Video(s)
You can upload your videos here.

Video Upload
Click ‘Browse’ to browse/select your local video file to upload to the server. After uploading, you can view it here.

List of uploaded files
1.mp4
2.mp4
3.mp4
4.mp4
7.3. Data viewing page

View Data
All the data collected from surveys can be viewed here.

## Data

<table>
<thead>
<tr>
<th>Rating</th>
<th>Video Name</th>
<th>Video URL</th>
<th>User Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1.mp4</td>
<td>13531.mp4</td>
<td>pawanchan</td>
</tr>
<tr>
<td>4</td>
<td>2.mp4</td>
<td>27512.mp4</td>
<td>pawanchan</td>
</tr>
<tr>
<td>4</td>
<td>3.mp4</td>
<td>593.mp4</td>
<td>pawanchan</td>
</tr>
<tr>
<td>4</td>
<td>4.mp4</td>
<td>23222.mp4</td>
<td>pawanchan</td>
</tr>
</tbody>
</table>

## Members

<table>
<thead>
<tr>
<th>ID</th>
<th>User Name</th>
<th>First Name</th>
<th>Last Name</th>
<th>Address</th>
<th>Date Of Birth</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>pawanchan</td>
<td>Pawan</td>
<td>Chan</td>
<td>Ronneby</td>
<td>1990-11-20</td>
<td>male</td>
</tr>
</tbody>
</table>
7.4. Log out page

Welcome to the Subjective video quality assessment tool

You have successfully logged out. Click here to login!
7.5. User login page

Log In
Please log in to continue

Welcome to the Subjective video quality assessment tool

User Login

Username: [Field]
Password: [Field]
Login

Not registered yet? Click here to register. Admin click here to login.
7.6. User registration page
7.7. Members’ page

Members' Area
Hello, pawanchan!

Welcome to Mean Opinion Score Test!

During this test, you will be asked to view test video clip(s) and rate the overall video quality according to the following opinion scale:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Definition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Excellent</td>
<td>A perfect video clip</td>
</tr>
<tr>
<td>4</td>
<td>Good</td>
<td>Video clip with very good quality</td>
</tr>
<tr>
<td>3</td>
<td>Fair</td>
<td>Video clip with acceptable quality i.e. some loss of quality but overall image acceptable</td>
</tr>
<tr>
<td>2</td>
<td>Poor</td>
<td>Low quality, image distorted, hard to understand the video</td>
</tr>
<tr>
<td>1</td>
<td>Bad</td>
<td>Communications breakdown</td>
</tr>
</tbody>
</table>
7.8. Videos list page

Video(s)
You can watch and rate videos here.

List of uploaded files

1.mp4
2.mp4
3.mp4
4.mp4
7.9. Video playback and rating page
7.10. Thank you page

Thank you
Thank you for your time!

Welcome to the Subjective video quality assessment tool
Thank you for your opinion. To view and rate more videos click on 'Members'.
8. Flow Chart

8.1. Home Page

Start

Display the menu Bar

| Home | Login | Register | Contact | About |

Show Brief Introduction

Input, Username & Password

Are you member

YES

Go to New window

Display Home

NO

Display message incorrect username or password

Did you input all fields correctly?

NO

Input, Username, Password, Lname, Lname, Address, Date of Birth & Gender

YES

Display message Register

Login in Successful and link to

Show the new menu bar which consists of Home, Members, Show Data, Add Videos, Contact, About and Layout Tabs

Display the message Hello, Username!!
If the link is clicked

Display username and link to the members' area

Display username and some information about the rating scale

Show the list of Surveyname, Ratings of the video with its name and URL

Show the area where videos are uploaded and the link of the video which we will rate

If the link is clicked

Play the video and give the rating between 1--5

After rating is given

Show Thank You Window
8.2. User Registration

Start

Connect to the database, import the css file

Start Session

Create a form with method ‘POST’ and action as same php file

Create a table inside the form with different field as required by the program with the Submit button

Is Submit button Click?

NO → Do nothing

YES → Assign the field with different Variables

Prevent Mysql injection
A

YES

Is there any empty field?

NO

query the database

YES

Is the username already taken?

NO

Insert the field from the form to the database

Show the link to login
8.3. Login Page

- Start
  - Connect to the database, import the css file to create different style
  - Create a form with "POST" method and action to be taken as same file
  - Create a table with field username, password and submit button
  - Input the Username and Password
    - Assign the variables from table with different names
      - Prevent Mysql injection
      - Is the field empty?
        - YES
          - Query in the members table in the database
        - NO
8.4. Video Uploading Page

Start

Connect to the database and import the css file to create the style for the webpage

Create the form with method "POST" and enctype "multipart/form-data"

Upload Video

Is submit button Clicked?

NO

Do nothing

YES

x

y
Breakdown the filename into different parts and assign it with different variables

Is Video format mp4, MP4?

YES

Move the uploaded video to the temporary folder

Query the database

Insert the uploaded video into the database

NO

Display message video format not supported
8.5. Viewing and Rating the Video

Start

Connect to the database and import the css file to create the style for the webpage

Get the video from the database

Play the video

Create the form name survey with method "POST" and action as same php file

Create the field with different rating scale with submit button

Is Submit button Clicked?

NO

Do nothing

YES

Assign the variable from the form with different name

Y
Is there any empty field?

If yes, go to add videos.php file.

If no, query the database and insert the field from the form in the database.
8.6. Viewing the data and the list of users

Start

Connect to the database and import the css file to create the style for the webpage

Query the database

Insert the rating information and members’ information from data into the table in the webpage one by one

Stop
9. Test outputs

After conducting the subjective test using Quality Assessment Tool (QAT) in the standard environment, the survey data can be stored in a local or remote server. The tool is designed in a way that after the user grades a video sequence, the ratings of the videos per each subjective test will be updated in the server database when the current session is finished. The data then can be exported in various formats according to the need and requirements like CSV, excel sheet, etc. These files give complete track of the conducted survey. The data can then be processed according to needs and requirements like applying confidence intervals, calculating standard deviation, calculating the average mean opinion score, etc.

10. Conclusion

In our research work, we have designed the tool that can be used to conduct a mass-scale level survey or subjective tests. ACR is the only method used to carry out the subjective video assessment. The test is very useful in the context of a video streaming quality. The survey can be used in various countries and sectors with low internet speeds to determine the kind of video or the compression technique, bit rate, or format that gives the best quality.

11. References

- [www.w3schools.com](http://www.w3schools.com)
- [http://www.wikipedia.org](http://www.wikipedia.org)
- [https://www.youtube.com](https://www.youtube.com)
- [http://www.phpeasystep.com](http://www.phpeasystep.com)
- [https://php.net](https://php.net)
- [http://www.ntt.co.jp](http://www.ntt.co.jp)
- “Perceptual Video Quality Assessment Tool” by Bhargav Pokala and Pavan Bandreddy (2011)
- “The H.264 Advanced Video Compression Standard” 2nd edition by Iain E. Richardson
12. Appendix of Codes (Page-wise)

12.1. Index.php

```php
<?php
session_start();  // Must Start a session.
require "config.php"; // Connection Script, must be included in every file! ?>
<html> <!--<![endif]-->  
<head>
<meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1"/>
<meta charset="utf-8"/>
<meta name="description" content="">
<meta name="author" content="">
<title>Home - PPP</title>
<link rel="stylesheet" type="text/css" media="screen" href="css/screen.css" />
<!--<![endif]-->
<script src="http://html5shim.googlecode.com/svn/trunk/html5.js"></script>
<!--<![endif]-->
</head>
<body>
<!-- wrap starts here -->
<div id="wrap">
<!--header -->
<div id="header">
<h1 id="logo-text"><a href="index.php" title="">Home</a></h1>
<p id="intro"><?php
if(isset($_SESSION['username'])){ echo "Hello, "._SESSION['username']."! You are logged in. Click <a href="members.php">here</a> to go to the Member's page.";
}
else { echo "Please login or register." ;
}?>
</p>
</div>
<!--header ends-->
```
```
Subjective Assessment is the most decisive way of evaluating the quality of a video, for humans are the eventual beneficiary in most applications. Subjective video quality is related with how video is observed by a viewer and nominates his or her opinion on a particular video sequence. The fundamental concept of measuring Subjective video quality is same as the Mean Opinion Score (MOS) for audio. And this task is done in a group by Prabesh Dhakal, Pawan Chan and Prabhat Tiwari.

You can go through our work on this website and for more information, please, contact one of us. This website design has been inspired by Style Shout.

Welcome to the Subjective video quality assessment tool!

To be yourself in a world that is constantly trying to make you something else is the greatest accomplishment.

We are carrying out this task in PHP since it uses less memory than other programming tools to carry out video testing.
<li><a href="register.php">Register</a></li>
<li><a href="contact.php">Contact</a></li>
<li><a href="about.php">About</a></li>
</ul>

<h3>Links</h3>
<ul class="sidemenu">
<li><a href="http://ekantipur.com/">Kantipur</a></li>
<li><a href="http://facebook.com">Facebook</a></li>
</ul>

<h3>Tutors</h3>
<ul class="sidemenu">
<span>Senior Lecturer, BTH</span></a></li>
<span>Project Assistant, BTH</span></a></li>
</ul>

<h3>Wise Words</h3>
<p>"To be yourself in a world that is constantly trying to make you something else is the greatest accomplishment." - Ralph Waldo Emerson</p>

<p class="align-right">Contact Us</p>
<p>If you are interested in our work, you are welcome to contact us - it will surely be appreciated.</p>

<p>&© Copyright Blekinge Tekniska Hogskola 2014; Design by @NepalStudent</p>
12.2. Adminlogin.php

<?php
session_start();
require "config.php";
//Check to see if the user is logged in.
if(isset($_SESSION['username'])){}
header("location: addvids.php"); //isset check to see if a variable has been 'set'
}
if(isset($_POST['submit']))
{
    //Variables from the table
    $user  = $_POST['user'];
    $pass  = $_POST['pass'];
    //seckey  = $_POST['seckey'];
    //Prevent MySQL Injections
    $user  = stripslashes($user);
    $pass  = stripslashes($pass);
    //seckey  = stripslashes($seckey);
    $user  = mysqli_real_escape_string($con, $user);
    $pass  = mysqli_real_escape_string($con, $pass);
    //Check to see if the user left any space empty!
    if($user == "" || $pass == "")
    {
        echo'<script language="javascript">;
        echo>alert("Oops! Username or Password is empty! TRY AGAIN!");
        echo'</script>;
    }
    //Check to see if the username AND password MATCHES the username AND password in the DB
    else
    {
        $query = mysqli_query($con,"SELECT * FROM admin WHERE username = '$user' and password = '$pass' ") or die("Can not query DB.");
        $count = mysqli_num_rows($query);
        if($count == 1){
            //YES WE FOUND A MATCH!
            $_SESSION['username'] = $user; //Create a session for the user!
            header("location: addvids.php");
        }
        else{
            echo'<script language="javascript">;
            echo>alert("Oops! Username, Password and Security Key do not match! TRY AGAIN!");
            echo'</script>;
        }
    }
}
?>
<table width="300" align="center" cellpadding="0" cellspacing="1" border="1px solid black">
<tr>
<form name="register" method="post" action="adminlogin.php">
<td>
<table width="100%" border="0" cellpadding="3" cellspacing="1" bgcolor="#FFFFF"
Admin Login

Username*

Password*

Not registered yet? Click here to register.

Introduction

Subjective Assessment is the most decisive way of evaluating the quality of a video, for humans are the eventual beneficiary in most applications. Subjective video quality is related with how video is observed by a viewer and nominates his or her opinion on a particular video sequence. The fundamental concept of measuring Subjective video quality is same as the Mean Opinion Score (MOS) for audio. And this task is done in a group by Prabesh Dhakal, Pawan Chan and Prabhat Tiwari.

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<blockquote>
<p>To be yourself in a world that is constantly trying to make you something else is the greatest accomplishment.
</p>
<p class="align-right">- Ralph Waldo Emerson</p>
</blockquote>

<p>We are carrying out this task in PHP since it uses less memory than other programming tools to carry out video testing.</p>

<h3>Contacts</h3>
<ul class="sidemenu">
<span>Senior Lecturer, BTH</span></a></li>
<span>Project Assistant, BTH</span></a></li>
</ul>

<h3>Sidebar Menu</h3>
<ul class="sidemenu">
<li><a href="index.php">Home</a></li>
<li><a href="login.php">Log In</a></li>
<li><a href="register.php">Register</a></li>
<li><a href="about.php">About</a></li>
<li><a href="contact.php">Contact</a></li>
</ul>

<h3>Links</h3>
<ul class="sidemenu">
<li><a href="http://ekantipur.com/">Kantipur</a></li>
<li><a href="http://facebook.com">Facebook</a></li>
</ul>

<h3>Tutors</h3>
<ul class="sidemenu">
<span>Senior Lecturer, BTH</span></a></li>
<span>Project Assistant, BTH</span></a></li>
</ul>
If you are interested in our work, you are welcome to contact us - it will surely be appreciated.

12.3. Register.php

```php
<?php
session_start(); //Must Start a session.
require "config.php"; //Connection Script, must be included in every file!
//Check to see if the user is logged in.
//isset check to see if a variables has been 'set'
if(isset($_SESSION['username'])){  
   header("location: members.php");
}
?>
<html>
<head>
<meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1"/>
<meta charset="utf-8"/>
<meta name="description" content=""/>
<meta name="author" content=""/>
<title>Register - PPP</title>
<link rel="stylesheet" type="text/css" media="screen" href="css/screen.css"/>
<!--[if lt IE 9]>
   <script src="http://html5shim.googlecode.com/svn/trunk/html5.js"></script>
<![endif]-->
</head>
<body>
</body>
</html>
```
<!DOCTYPE html>
<html>
<head>
<!-- wrap starts here -->
<div id="wrap">
<!--header -->
<div id="header">
<h1 id="logo-text"><a href="register.php" title="">Registration</a></h1>
<p id="intro">
User registration</p>
<div id="nav">
<ul>
<li><a href="index.php">Home</a></li>
<li><a href="login.php">Log In</a></li>
<li id="current"><a href="register.php">Register</a></li>
<li><a href="contact.php">Contact</a></li>
<li><a href="about.php">About</a></li>
</ul>
</div>
</div>
</div>
<!-- header ends-->
</div>
<!-- content-wrap starts -->
<div id="content-wrap">
<div id="main">
<a name="TemplateInfo"></a>
<h2 align="center">Welcome to the Subjective video quality assessment tool</h2>
<?php
//Check to see if the user click the button
if(isset($_POST['submit']))
{

//Variables from the table
$user    = $_POST['user'];
$pass    = $_POST['pass'];
$rpass   = $_POST['rpass'];
$Fname    = $_POST['FName'];
$LName    = $_POST['LName'];
$Address    = $_POST['Address'];
//$Age         = $_POST['age'];
$Gender   = $_POST['Gender'];
//Prevent MySQL Injections
$user    = stripslashes($user);
$pass    = stripslashes($pass);
$rpass   = stripslashes($rpass);
$Fname    = stripslashes($Fname);
$LName    = stripslashes($LName );

// Do something here...

</div>
</div>
</div>
</body>
</html>
$Address = stripslashes($Address);
// $PersonalNum = stripslashes($Age);
$Gender = stripslashes($Gender);
$user = mysqli_real_escape_string($con, $user);
$pass = mysqli_real_escape_string($con, $pass);
$rpass = mysqli_real_escape_string($con, $rpass);
$Fname =mysqli_real_escape_string($con, $Fname);
$LName =mysqli_real_escape_string($con, $LName);
$Address = mysqli_real_escape_string($con, $Address);
// $PersonalNum = mysqli_real_escape_string($con, $Age);
$Gender = mysqli_real_escape_string($con, $Gender);
// Check to see if the user left any space empty!
if($user == "" || $pass == "" || $rpass == "" || $Fname=="" || $LName=="" || $Address=="")
{
    echo "Please fill in all the information!";
}
else
{
    // Check too see if the user's passwords match!
    if($pass != $rpass)
    {
        echo "Passwords do not match! Try Again.";
    }

    // CHECK TO SEE IF THE USERNAME IS TAKEN, IF NOT THEN ADD USERNAME AND PASSWORD INTO THE DB
    else
    {
        // Query the DB
        $query = mysqli_query($con,"SELECT * FROM members WHERE username = "'".$user."'"");
        or die("Can not query the TABLE!");
        // Count the number of rows. If a row exist, then the username exist!
        $row = mysqli_num_rows($query);
        if($row == 1)
        {
            echo "Sorry, the username is already taken! Try again.";
        }
        else
        {
            $add = mysqli_query($con,"INSERT INTO members (id, username, password, FName, LName, Address, Gender) VALUES (null, '".$user.", ".$pass.", ".$Fname.", 'LName', ".$Address.", ".$Gender.")") or die("Can't Insert ");
            header("location: login.php");
            // echo "Registration Successful! <a href='login.php'> Click Here </a> to log In.";
        }
    }
}
<table width="300" align="center" cellpadding="0" cellspacing="1" border="1px solid black">
<tr><td>
<form name="register" method="post" action="register.php">
<tr><td><table width="100%" border="0" cellpadding="3" cellspacing="1" bgcolor="#FFFFFF">
<tr><td colspan="3"><strong><center><h3>User Registration Form</h3><h5>(Please fill in all the information)</h5></center></strong></td>
</tr>
<tr><td width="90">Username*</td><td width="3">:</td><td width="187"><input name="user" type="text" id="user"></td></tr>
<tr><td>Password*</td><td>:</td><td><input name="pass" type="password" id="pass"></td></tr>
<tr><td>Repeat Password*</td><td>:</td><td><input name="rpass" type="password" id="rpass"></td></tr>
<tr><td>First Name*</td><td>:</td><td><input name="FName" type="FName" id="FName"></td></tr>
<tr><td>Last Name*</td><td>:</td><td><input name="LName" type="LName" id="LName"></td></tr>
<tr><td>Address*</td><td>:</td><td><input name="Address" type="Address" id="Address"></td></tr>
</table></td></tr></form>
</table>
<h2>Introduction</h2>

Subjective Assessment is the most decisive way of evaluating the quality of a video, for humans are the eventual beneficiary in most applications. Subjective video quality is related with how video is observed by a viewer and nominates his or her opinion on a particular video sequence. The fundamental concept of measuring Subjective video quality is same as the Mean Opinion Score (MOS) for audio. And this task is done in a group by Prabesh Dhakal, Pawan Chan and Prabhat Tiwari.

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Contacts

If you are interested in our work, you are welcome to contact us - it will surely be appreciated.

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- Ralph Waldo Emerson

Senior Lecturer, BTH

Project Assistant, BTH
Addvids.php (Uploading Video)

```php
<?php
session_start();
require "config.php";
//Check to see if the user is logged in.
if(!isset($_SESSION['username'])){  
    header("location: login.php"); //isset check to see if a variables has been 'set'
}
?>
<?php
if (isset($_POST['submit'])){  
{
    $name = $_FILES['file']['name'];
    $type=explode('.',$name);
    $type=end($type);
    $size=$_FILES['file']['size'];
    $random_name=rand();
    $tmp = $_FILES['file']['tmp_name'];
    $url = "http://localhost/web/uploads/$random_name.$type";
    move_uploaded_file($tmp, "uploads/".$random_name.'.'.$type);
    
    else{  
    
    }  
    
    }  
    
```
$add = mysqli_query($con, "INSERT INTO videos (id, vidname, url, size) VALUES (null, '$name', '$random_name.$type', '$size') ") or die("Can't Insert! ");
?>
<html> <!--<![endif]-->
<head>
<meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1"/>
<meta charset="utf-8"/>
<meta name="description" content=""/>
<meta name="author" content=""/>
<title>Add Video(s) - PPP</title>
<link rel="stylesheet" type="text/css" media="screen" href="css/screen.css" />
<!--[if lt IE 9]>
<script src="http://html5shim.googlecode.com/svn/trunk/html5.js"></script>
<![endif]-->
</head>
<body>
<!-- wrap starts here -->
<div id="wrap">
<!--header -->
<div id="header">
<h1 id="logo-text"><a href="addvids.php" title="">Add Video(s)</a></h1>
<p id="intro">You can upload your videos here.</p>
<div id="nav">
<ul>
<li><a href="index.php">Home</a></li>
<li><a href="showdata.php">Show Data</a></li>
<li id="current"><a href="addvids.php">Add Video(s)</a></li>
<li><a href="logout.php">Log Out</a></li>
</ul>
</div>
<!--header ends-->
</div>
<!-- content-wrap starts -->
<div id="content-wrap">
<div id="main">
<a name="TemplateInfo"></a>
<h2>Video Upload</h2>
<h4>Click 'Browse' to browse/select your local video file to upload to the server. After uploading, you can view it here.</h4>
<div id='box' align="center">
<form action="addvids.php" method="POST" enctype="multipart/form-data">
<input type="file" name="file">
<input type="submit" name="submit" value="Upload">
</form>
</div>
</div>
</div>
<!-- wrap ends -->
</div>
</body>
</html>
<form>
<?php
if (isset($_POST['submit'])) {
    echo "<br />"."$name." has been uploaded!";
}
?></form>
<?php
<h2> List of uploaded files </h2>
$query=mysqli_query($con,"SELECT * FROM videos");
while($run=mysqli_fetch_array($query)){
    $video_id=$run['id'];
    $video_name=$run['vidname'];
    $video_url=$run['url'];
    $video_size=$run['size'];
    <div id='url' align="center">
    <?php echo $video_name; ?></div>
    </a>
<?php}
</div></p>
<h2>Introduction</h2>
<p class="post-info">Posted by <a href="http://facebook.com/prawesh2000">prabesh</a></p>
<p><strong>Subjective Assessment </strong>is the most decisive way of evaluating the quality of a video, for humans are the eventual beneficiary in most applications. Subjective video quality is related with how video is observed by a viewer and nominates his or her opinion on a particular video sequence. The fundamental concept of measuring Subjective video quality is same as the Mean Opinion Score (MOS) for audio. And this task is done in a group by by <a href="https://www.facebook.com/prawesh2000">Prabesh Dhakal</a>, <a href="https://www.facebook.com/thakuri.pawan">Pawan Chan</a> and <a href="https://www.facebook.com/prabhat.tiwari1">Prabhat Tiwari</a>.<p></p>
</p>
You can go through our work on this website and for more information, please, contact one of us. This website design has been inspired by <a href="http://www.styleshout.com/">Style Shout</a>.</blockquote>
To be yourself in a world that is constantly trying to make you something else is the greatest accomplishment.

- Ralph Waldo Emerson

We are carrying out this task in PHP since it uses less memory than other programming tools to carry out video testing.

We are carrying out this task in PHP since it uses less memory than other programming tools to carry out video testing.

About

We are carrying out this task in PHP since it uses less memory than other programming tools to carry out video testing.

Sidebar Menu

- Home
- Show Data
- Add Video(s)
- Log Out

Links

- Kantipur
- Facebook

Tutors

- Benny Lovstrom
- Muhammad Shahid

Wise Words

To be yourself in a world that is constantly trying to make you something else is the greatest accomplishment.

- Ralph Waldo Emerson

Contact Us

If you are interested in our work, you are welcome to contact us - it will surely be appreciated.
12.5. Showdata.php (Viewing the video ratings and list of user)

```php
<?php
session_start();
require "config.php";
//Check to see if the user is logged in.
if(!isset($_SESSION['username'])){\n    header("location: login.php"); //isset check to see if a variables has been 'set'
}
?>
<html> <!--[endif]-->
<head>
<meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1"/>
<meta charset="utf-8"/>
<meta name="description" content=""/>
<meta name="author" content=""/>
<title>Show Data - PPP</title>
<link rel="stylesheet" type="text/css" media="screen" href="css/screen.css" />
<!--[if lt IE 9]-->\n    <script src="http://html5shim.googlecode.com/svn/trunk/html5.js"></script>\n<!--[endif]-->
</head>
<body>
<!-- wrap starts here -->
```
All the data collected from surveys can be viewed here.

```
<?php
$con=mysqli_connect("localhost","root","123","final");
// Check connection
if (mysqli_connect_errno()) {
    echo "Failed to connect to MySQL: ". mysqli_connect_error();
}
$result = mysqli_query($con,"SELECT * FROM ratings");
echo "<table border='2'>
<tr>
  <th>Rating</th>
  <th>Video Name</th>
  <th>Video URL</th>
  <th>User Name</th>
</tr>

while($row = mysqli_fetch_array($result)) {
    echo "<tr>
    echo "<td>" . $row['rating'] . "</td>
    echo "<td>" . $row['vidname'] . "</td>
    echo "<td>" . $row['vidurl'] . "</td>
    echo "<td>" . $row['username'] . "</td>
    echo "</tr>
    }
}
echo "</table>";
mysqli_close($con);
?>
```
Members

```php
$con=mysqli_connect("localhost","root","123","final");
// Check connection
if (mysqli_connect_errno()) {
    echo "Failed to connect to MySQL: ". mysqli_connect_error();
}
$result = mysqli_query($con,"SELECT * FROM members");
echo "<table border='2'>
<tr>
<th>ID</th>
<th>User Name</th>
<th>First Name</th>
<th>Last Name</th>
<th>Address</th>
<th>Date Of Birth</th>
<th>Gender</th>
</tr>
<?php
while($row = mysqli_fetch_array($result)) {
    echo "<tr>
    echo ",".$row["id"]
    echo ",".$row["username"]
    echo ",".$row["FName"]
    echo ",".$row["LName"]
    echo ",".$row["Address"]
    echo ",".$row["DOB"]
    echo ",".$row["Gender"]
</tr>
}
</table>
mysqli_close($con);
?>
```

Introduction

Subjective Assessment is the most decisive way of evaluating the quality of a video, for humans are the eventual beneficiary in most applications. Subjective video quality is related with how video is observed by a viewer and nominates his or her opinion on a particular video sequence. The fundamental concept of measuring Subjective video quality is same as the Mean Opinion Score (MOS) for audio. And this task is done in a group by Prabesh Dhakal, Pawan Chan and Prabhat Tiwari.
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About

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Links

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Tutors

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Wise Words

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To be yourself in a world that is constantly trying to make you something else is the greatest accomplishment.
12.6. Playback.php (viewing and rating the video)
You can watch and record your opinion here.

<?php
@session_start();
include 'config.php';
//Check to see if the user is logged in.
if(!isset($_SESSION['username'])){  
    header("location: login.php"); //isset check to see if a variables has been 'set'
}
$files = getFiles();
if(!isset($_SESSION['counter'])){  
    $_SESSION['counter']=0;
}
if(isset($_POST['submit'])){  
    if(!empty($_POST['grade1'])){  
        $uname=$_SESSION['username']; //print_r($uname);
        //define username here
        //echo "$files['vidname']";
        //defint the url thing here
        $rating = $_POST['grade1'];
        $vidname = $files[$_SESSION['counter']]['url'];
        $vidurl = ($files[$_SESSION['counter']]['vidname']);
        $conn = connectDB();
        $sql = "INSERT INTO `ratings` ( `rating`, `vidname`, `vidurl`, `username`) VALUES ( '{$rating}', '{$vidurl}', '{$vidname}','{$uname}') ";
        mysqli_query($conn,$sql);
        if(mysqli_insert_id($conn)){

```
<?php

$counter = $_SESSION['counter'];
//echo $counter;
//echo "<br>">
//print_r($files);
$curFile = $files[$counter]['url'];

function connectDB(){
    $db = 'final';
    $host = 'localhost';
    $user = 'root';
    $pass = '123';
    $conn = mysqli_connect($host,$user,$pass,$db);
    return $conn;
}

function getFiles(){
    $files=array();
    $conn = connectDB();
    if($conn){
        $sql = 'SELECT * FROM videos';
        $res = mysqli_query($conn, $sql);
        //print_r($res);
        while($rr = mysqli_fetch_assoc($res)){
            $files[] = $rr;
        }
    }
    return $files;
}?

<?php echo "$curFile"; ?>

<video id="video1" height="300px" autoplay >
<source src="uploads/<?php echo $curFile?>" type="video/mp4">
<embed width="480" height="360" src="trailer.swf">
</object>

</video>

<h2> Rating </h2>

echo "<p>Thank for your rating. Check another !!</p>";
$_SESSION['counter']++;
if($_SESSION['counter']>=count($files)){
    header("Location:thankyou.php");
}
//$_SESSION['counter']+1;
} else {
    echo "<p>An error occurred. Please try again !!</p>";
}
} else {
    echo "<p>You must choose a grade between 0 to 5.</p>
";
}
?>
Please select your grading on 1 to 5 Scale (1 being the lowest and 5 being the highest).

- Bad
- Poor
- Fair
- Good
- Excellent

Play video
Pause Video
Submit grading

Introduction

Subjective Assessment is the most decisive way of evaluating the quality of a video, for humans are the eventual beneficiary in most applications. Subjective video quality is related with how video is observed by a viewer and nominates his or her opinion on a particular video sequence. The fundamental concept of measuring Subjective video quality is same as the Mean Opinion Score (MOS) for audio. And this task is done in a group by Prabesh Dhakal, Pawan Chan and Prabhat Tiwari.
You can go through our work on this website and for more information, please, contact one of us. This website design has been inspired by Style Shout.<br/>

<blockquote><p>To be yourself in a world that is constantly trying to make you something else is the greatest accomplishment.</p><p class="align-right">- Ralph Waldo Emerson</p></blockquote>

We are carrying out this task in PHP since it uses less memory than other programming tools to carry out video testing.<br/>

<h3>About</h3>
<p><img src="images/thumb.jpg" width="40" height="40" alt="firefox" class="float-left" />We are carrying out this task in PHP since it uses less memory than other programming tools to carry out video testing.</p>

<h3>Sidebar Menu</h3>
<ul class="sidemenu">
  <li><a href="index.php">Home</a></li>
  <li><a href="members.php">Members</a></li>
  <li><a href="vidlist.php">Videos</a></li>
  <li><a href="contact.php">Contact</a></li>
  <li><a href="about.php">About</a></li>
  <li><a href="logout.php">Log Out</a></li>
</ul>

<h3>Links</h3>
<ul class="sidemenu">
  <li><a href="http://ekantipur.com/">Kantipur</a></li>
  <li><a href="http://facebook.com">Facebook</a></li>
</ul>

<h3>Tutors</h3>
<ul class="sidemenu">
</ul>

<h3>Wise Words</h3>
<p>"To be yourself in a world that is constantly trying to make you</p>
something else is the greatest accomplishment."</p>
<p class="align-right">- Ralph Waldo Emerson</p>
<h3>Contact Us</h3>
<p>If you are interested in our work, you are welcome to contact us - it will surely be appreciated.</p>

12.7. Logout.php

<head>
<meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1"/>
<meta charset="utf-8"/>
<meta name="description" content=""/>
<meta name="author" content=""/> 
<title>Log Out - PPP</title>
<link rel="stylesheet" type="text/css" media="screen" href="css/screen.css"/>
<!--[if lt IE 9]>
<![endif]-->
</head>
<body>
<!-- wrap starts here -->
<div id="wrap">
<!-- header -->
</div>
<!-- wrap ends here -->
You are now logged out.

Welcome to the Subjective video quality assessment tool.

Subjective Assessment is the most decisive way of evaluating the quality of a video, for humans are the eventual beneficiary in most applications. Subjective video quality is related with how video is observed by a viewer and nominates his or her opinion on a particular video sequence. The fundamental concept of measuring Subjective video quality is same as the Mean Opinion Score (MOS) for audio. And this task is done in a group by Prabesh Dhakal, Pawan Chan and Prabhat Tiwari.

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- Ralph Waldo Emerson

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12.8. Config.php (connecting to the database)

<?php
//Information to connect to MySQL Server and Database
$host = "localhost";
$username = "root";
$password = "123";
$db = "final";
//Connect to MySQL Server
$con = mysqli_connect($host,$username,$password,$db) or die("Can not connect to Server.")