LAB MANUAL

MULTIMEDIA TECHNOLOGY

LAB

MULTIMEDIA LAB

RATIONAL BEHIND THE MULTIMEDIA LAB

The main reason behind organizing this lab is that

1. Student should known about the multimedia software and hardware tools and also they can interact with multimedia practically.

2. There are so many software tools of multimedia like photoshop, flash, dreamweaver so we organize this lab because students can practically understands these tools .

3. Students can create websites what they want from any multimedia software tools.

4. Students can make games by using multimedia concepts.

5. There are so many application of multimedia in various fields like in education,in schools, in buissness,in communication.so students by performing in this lab can make their future in one of field.

6. Multimedia is supportive for informal learning of science and technology.

7. Multimedia provide new platform document.

8 .Multimedia provide real world experiences to students.

SOFTWARE AND HARDWARE REQUIRMENTS

HARDWARE REQUIRMENTS FOR SERVER:

PROCESSOR: P-IV

RAM: 256MB

HDD: 40GB

SPEED: 2.4GHZ

SOFTWARE REQUIRMENTS :

OPERATING SYSTEM: WINDOWS 2003, WINDOWS XP

Software tools: FLASH, PHOTOSHOP, DREAMWEAVER, Blender,

Experiment:1

*AIM: -*To study MULTIMEDIA HARDWARE system: -

a) INPUT DEVICES

b) OUTPUT DEVICES

c) COMMUNICATION DEVICES

REQUIREMENTS*: -* Floppy Disc, Hard Disc, DVD, CD Rom, Input devices like Track Ball, Touch Screen, Mice, Flat Bed, Digital Camera, Output devices like Amplifier speaker, monitor, projector, Printer.

THEORY: -

INPUT DEVICES:

A great variety or input devices -from the familiar keyboard and handy mouse to touch screen and voice recognition setups can be used for development and delivery or a multimedia project.

1) KEYBOARD:

A keyboard is the most common method of interaction with a Computer. Keyboards provide various tactile responses and have variously layout depending upon your Computer system and keyboard -model.
Keyboard is typically rated at least 50 million cycles.

The most common keyboard for PCs is the 1011 style, although many styles are available with one or more special keys LED's.

2) MICE:

A mouse is the standard tool for interacting with a graphical user interface (QUI). All Macintosh computers require a mouse; on PCs, mouse: are not required but recommended. The buttons on the mouse provide additional user input, such as pointing and double clicking to open a document.

3) TRACK BALL:

Track ball are similar to mice except that the cursor is moved by using one or more fingers to roll across the top of the ball. The track ball does not need the flat space required by a mouse. Track ball have at least two buttons;one for the user to click, and the other to provide the press and hold condition necessary for selecting & dragging operation.

4) TOUCHSCREEN:

Touch screens are monitors that usually have a textured coating across the glass face. This coating is sensitive to pressure and register the location of the user's finger when it touches the screen. The touch mate system, which has no coating, actually measures the pitch roll, and yaw rotation of the monitor when pressed by finger, and determine how much force exerted and the location where the force was applied.

5) MAGNETIC CARD ENCODERS AND READERS:

Magnetic card setups are useful when you need an interface for a data- base application or multimedia project that tracks users. You need both card encoder and a card reader for this type of interface. The encoder connects to the computer at the serial port and transfer information to magnetic strip of tape on the back of the card.

6) FLAT-BED SCANNERS:

A scanner may be the most useful piece of equipment you will use in the course of producing a multimedia project. There are flat bed scanner and handheld scanners. Most commonly available are gray -scale and color flat- bed scanners that provide a resolution of 300 or 600 dots per inch.
Professional graphics houses may use even higher resolution unit.

7) OPTICAL CHARACTER RECOGNITION (OCR) DEVICES:

OCR sofware, such as omni page from cacre or perceive from ocron, to convert printed matter to ASCII text files in our computer. We can also convert paper document into a word processing document on our computer without retyping or rekeying.

An OCR terminal can be of use to multimedia developer because it recognizes not only printed characters but also handwriting.

8) INFRARED REMOTES:

An infrared remote unit Iets a user interact with our project while we are freely moving about. Remotes work like mice and trackballs, except they use infrared light to direct the cursor and require no cables to communicate. Remote mice work well for a Iecture or other presentation in an auditorium or similar environment, when the speaker needs to move around the room.

9) VOICE RECOGNITION SYSTEM:

Voice recognition system facilitates hands free interaction with your project. These system usually provide a unidirectional cardiod, noise canceling microphone that automatically filters out background noise. Most voice recognition system currently available can trigger common events such as Save, Quit, Open, Print etc.The Macintosh A V and Power Macintosh computer include voice recognition capability and add on sound board such as the Sound blaster or Diamond Sonic Sound and other provide this features for PCs.

10) <u>DIGITAL CAMERA:</u>

Digital Camera use the same technology i.e. CCD as video camera uses. They capture the still images of a given no. of pixels and the images are stored in camera's memory to be uploaded later to a computer. The higher the mega pixel rating, the higher the resolution of camera.Images are uploaded from the camera's memory using a serial, parallel cable.

b) OUTPUT HARDWARE*: -*

Presentation or the audio and the visual components or our multimedia project requires hardware that may or may not be included with the computer itself- speakers, amplifiers, monitor, motion video devices and capable storage devices. There is no greater test of benefit of good output hardware than to feed the audio output of your computer into an external amplifier.

1) <u>AUDIO DEVICES:</u>

All Machintosh are equipped with an internal speaker and a dedicated sound chip and they are capable of audio output without additional hardware and /or software.To take advantage of built in stereo sound, external speakers are required. Digitizing sound on your Machintosh requires an external microphone and sound editing/recording software such as Sound edit 16 from Macromedia, Sound Forge.

2) <u>AMPLIFIERS ANS SPEAKERS:</u>

Often the speakers we use during a project development will not be adequate for development of multimedia project.Speakers with built in amplifier are important when our project will be presented to a large audience.

3) <u>MONITORS:</u>

The monitors we need for development of multimedia projects depend on the type of application we are creating.A wide variety of monitors are

available for both Machintosh and PCs.High-end, large screen graphics monitors and LCD panels are available for both, and they are expensive.

Serious multimedia developers will often attach more than one monitor to their computers, using add-on graphics boards.This is because many authoring system allow us to work with several open windows at a time so we can dedicate one monitor to viewing the work we are creating or

designing and can perform various editing tasks in windows on other monitor that do not block the view of work.

4) <u>VIDEO DEVICES</u>:

Message medium has the visual impact of video with a video digitizing board installed in computer, can display a television picture on monitor. Some boards include frame-grabber features for capturing the images and turning it into a color bitmap, which can be saved as a PICT or TIFF file and then used as a part of a graphics or a background project.

5) <u>PROJECTORS:</u>

When we need to show material to more viewers that can huddle around a computer monitor, we will need to project it onto a large screen or even a white painted wall. Cathoda-ray tube projectors, liquid crystal display (LCD) panel attached to an overhead projector, stand alone LCD projectors, and light-valve projectors are available to splash work onto big screen surfaces.

6) <u>PRINTERS</u>:

With the advent of reasonably priced color printers, hard copy output has entered the mutimedia scene. From storyboards to presentation to production of collateral marketing material, color printers have become an important part of the multimedia development environment.Color helps clarify concept, improve understanding and retention or information, and organize complex data. Xerox offers both solid ink and laser options.

c) COMMUNICATION DEVICES*:* -

Many multimedia application are developed in workgroups comprising instructional designers, writers, graphics artists, programmers, and musician located in the same office space or building. The workgroup member's computers typically arc connected on a local area network (LAN) the client's computers, however, may he thousand miles distant, requiring other methods of good communication.

In the work place us quality equipment and software for your communication setup. The cost in both the time and money of stable and fast networking will be returned to you.

1) <u>MODEMS:</u>

Modems can be connected to your computer externally at the serial port or internally as a separate board. Internal modems often include fax capability.Be sure that the modem is Hayes compatible. Hayes AT standard commmand set allows us to work with most software communication packages.

Modem speed, measured in band, is the most important consideration. Because the multimedia files that contain the graphics, audio resources, video samples and progressive version of the project are usually large and in many cases we need to move as much data in short period of time. Compression saves significant transmission time and money, especially over long distance.

2) <u>ISDN:</u>

For higher transmission speed, we will need to use Integrated Service Digital Network (ISDN), switched -56, TI, T3, DSL, ATM etc. ISDN lines are popular because of their fast 128 kbps data transfer rate- four to five times faster than the more common 28.8 kbps analog modem. ISDN lines are important for Internet accessing, Networking and audio and video conferencing. They are more expensive than the convention analog lines, so analyze your costs and benefits carefully before upgrading to ISDN. Newer and faster Digital Subscriber Line (DSL) technology using copper lines and promoted by the telephone companies may overtake ISDN.

3) <u>CABLE MODEM:</u>

 Cable modems usually send and receive data symmetrically -they receive more (faster) than they send. In the downstream direction from provider to user, the data is modulated and placed on a common 6 Mhz television

carrier, somewhere between 42 MHz & 750 MHz. The upper stream channel, or reverse path, from user to provider is more difficult to engineer because cable is more noisy environment with interference from HAM radio, CB radio, home appliances, loose connections etc.

Experiment:2

<u>**AIM:**</u> To study the Multimedia BASIC SOFTWARE TOOLS.

<u>**REQUIREMENTS:**</u> Basic software tools.

<u>**THEORY:**</u>

a) Text editing and Word processing tools: - A word processor is usually the first software tool computer users learns. From letter invoice and story boards to project content word processors may also be our most often used tool, as we design or build a multimedia project. Word processor such as Microsoft Word and Word Perfect are powerful that includes spell checkers, table formatters, templates for letters, resume purchase orders and other common documents. In many word processor we can actually embed multimedia elements such as sound, images and video etc.

b) OCR software network: - With optical character recognition (OCR) software, a flat-bed scanner and our computer, we can save many hours of rekeying printed words, and get the job done faster and more accurately than roomful of typists. OCR software turns bitmapped characters into electronically recognizable ASCII text. A scanner is typically used to create the bitmap. Then the software breaks the bitmap into chunks according to whether it contains text or graphics by examining the texture and density of area of the bitmap and by detecting edges. The text areas are then converted into ASCII character using probability and expert system algorithms.

c) Painting and Drawing tools: - Painting and drawing tools as well as 3D modelers, are perhaps the most important items in your toolkit because of all multimedia elements, the graphical impact of our project will likely have the greatest influence on the end user. Painting software such as Corel draw, free hand is dedicated to producing vector based line art easily printed to paper at high resolution.

d) 3D modeling and animation tools: - With 3D modeling software,object rendered in perspective appear more realistic. We can create stunning scenes and wander through them by choosing just the right lighting and perspective for our final renedered image. Powerful modeling packages such as Infini-D, auto desk, strata vision's, secular logo motion, wave front, aids soft images. Important for multimedia developers, many 3D modeling applications also include export features enabling us to save a moving view or journey through our scenes as a quick time or AVI animation file. Each rendered 3D image takes from a few seconds to few hours to complete, depending upon the complexity of the drawing and the number of drawn objects included in it. A good 3D modeling tool should include the following features:

    i.   Ability to drag and drop primitive shapes into a scene.

    ii.   Lathe and extrude features.

    iii.   Color and texture mapping.

    iv.   Ability to create and sculpt organic objects from scratch with Bezier spline drawing tools.

    v.   Unlimited cameras with focal length.

e) Image editing tools: - Image editing applications are specialized and powerful tools for enhancing and retouching existing bit-mapped images. These applications also provide many of the features and tools of painting and drawing programs and can be used to create images from scratch as well as images digitized from scanners, video frame grabbers, digital camera clip art files or original artwork files created with painting or drawing package.

f) Animation: - Video and digital movie tools : today the most widely used tool for creating multimedia animations for Machintosh and Windows environment is Macromedia director. Animations and digitized video movies are sequences of bit-mapped graphics scene, rapidly played back. Most authoring tools adopt either a frame or object oriented approach to animation, but rarely both. Moviemaking tools typically take advantage of quick time for Machintosh and Windows and Microsoft video for Windows technology and let you create, edit and present digitized motion video segments, usually a small window in your project. To make a

movie from video, you need special hardware to convert the analog video signal into digital data movie making tool such as Premer, videoshop, media studio pro and let you edit and assemble video clips captured from camera, tape and other digitized audio or midi files.

g) Sound editing tools: - System sounds are shipped with both Machintosh and window system, and they are available as soon as we install the operating system. System sounds and beeps are used to indicate an error, warning or special user activity. Using sound editing software we can make our own sound effects. We need software for editing digital sounds. Although we can usually incorporate MIDI sound files in our multimedia project without learning any special skill, using editing tool to make our own MIDI file requires that we understand the way music is sequenced, stored and published. We need to know about tempos, clips, notations and instruments. And we will need a MIDI synthesizer or device connected to our computer. Many MIDI applications provide both sequencing and notation capabilties, and some let you edit both digital audio and MIDI within the same application.

Experiment-3

Design a poster for 2019 election and show the difference in resolution and quality for Print and Web.

Step1: Create a new file according to your need , web or print.

Step2: Insert a image of Indian flag and fix it using **Move tool(   )** or press(V) on your keyboard to select move tool.
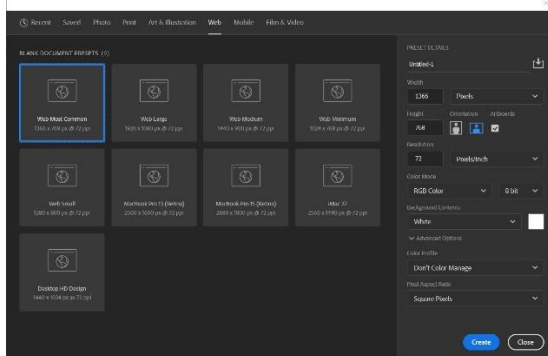
Step3: Insert a text box in your poster using **Horizontal Type Tool (T)** or press (T) on your keyboard to select the Horizontal type tool.

Step4: Fix your text and align it according to your preferences using the Move tool.

Step5: Save your file as a jpeg from save as option in file dropdown menu.
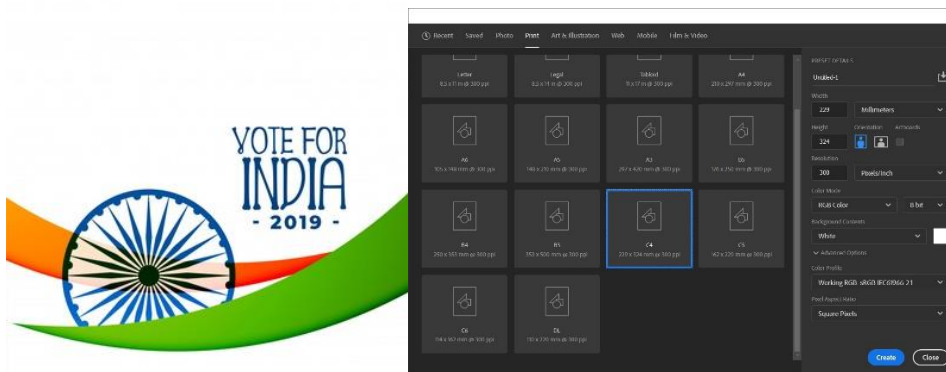
Resolution for print media is set as 300ppi.

Resolution for web media is set as 72ppi.

Experiment-4

Pick any picture of a magazine cover page make changes using selection tool.

Step1: Choose a magazine cover of your choice from internet .

Step2: open your jpeg image in photoshop .

Step3: Select **Object Selection tool** from tool bar or press (W) on your keyboard for the shortcut.

Step4: Enwrap your object using the Object Selection tool , photoshop will automatically select the object for you.

Step5: Now you can move the selection using the Move tool and edit the cover as you like.

Step6: Finally save your image as jpeg .
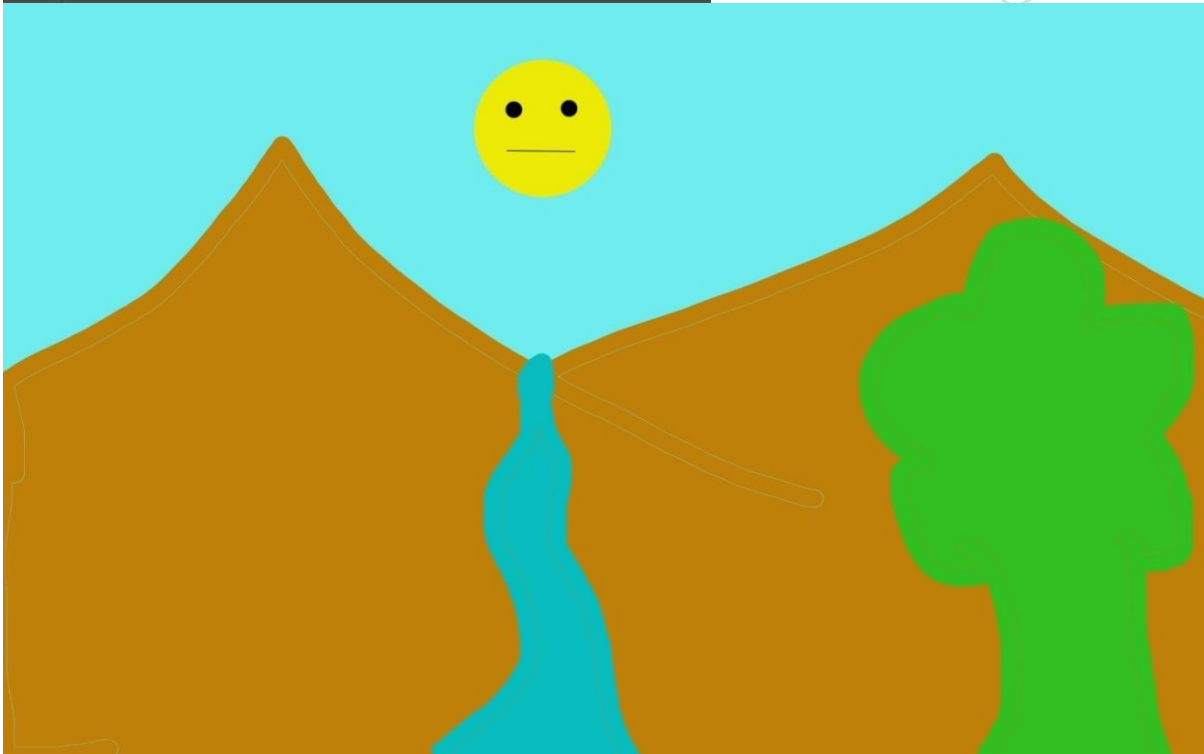

Experiment-5
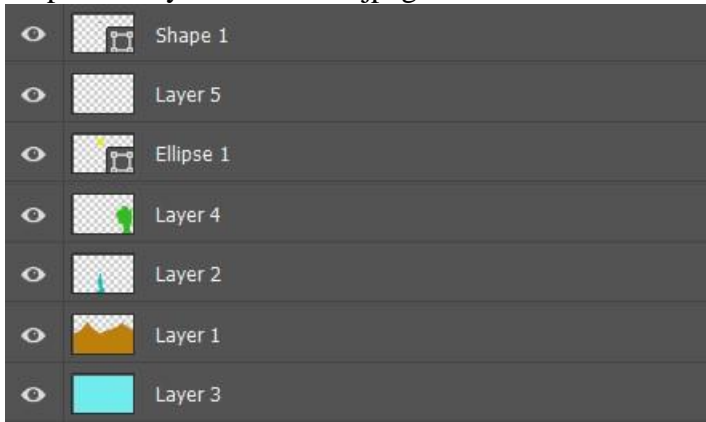
Draw a landscape using multiple Layers.

Step1: Create a new file in photoshop with dimensions 1440x900 px.

Step2 : Create a new layer and draw mountains on it using paint tool .

Step3: Repeat step 2 for each element of your landscape .

Srep4: Arrange layers so that they don't overlap each other and foreground elements are on the
top.

Step5: Save your Picture in jpeg form.

Experiment-6

**Paint a scenery of a park using different tools of Photoshop.**

Step1: Create a new file in photoshop with dimensions 1440x900 px.

Step2: Create boundary of park using Ellipse tool .

Step3: Draw the swings at park using paint tool and use shift key to draw straight lines.

Step4: Draw a tree using paint tool and press CTRL+J on its layer and create its copy.

Step5: Place each tree according to your choice.
Step6: Save your scenery in jpeg format.
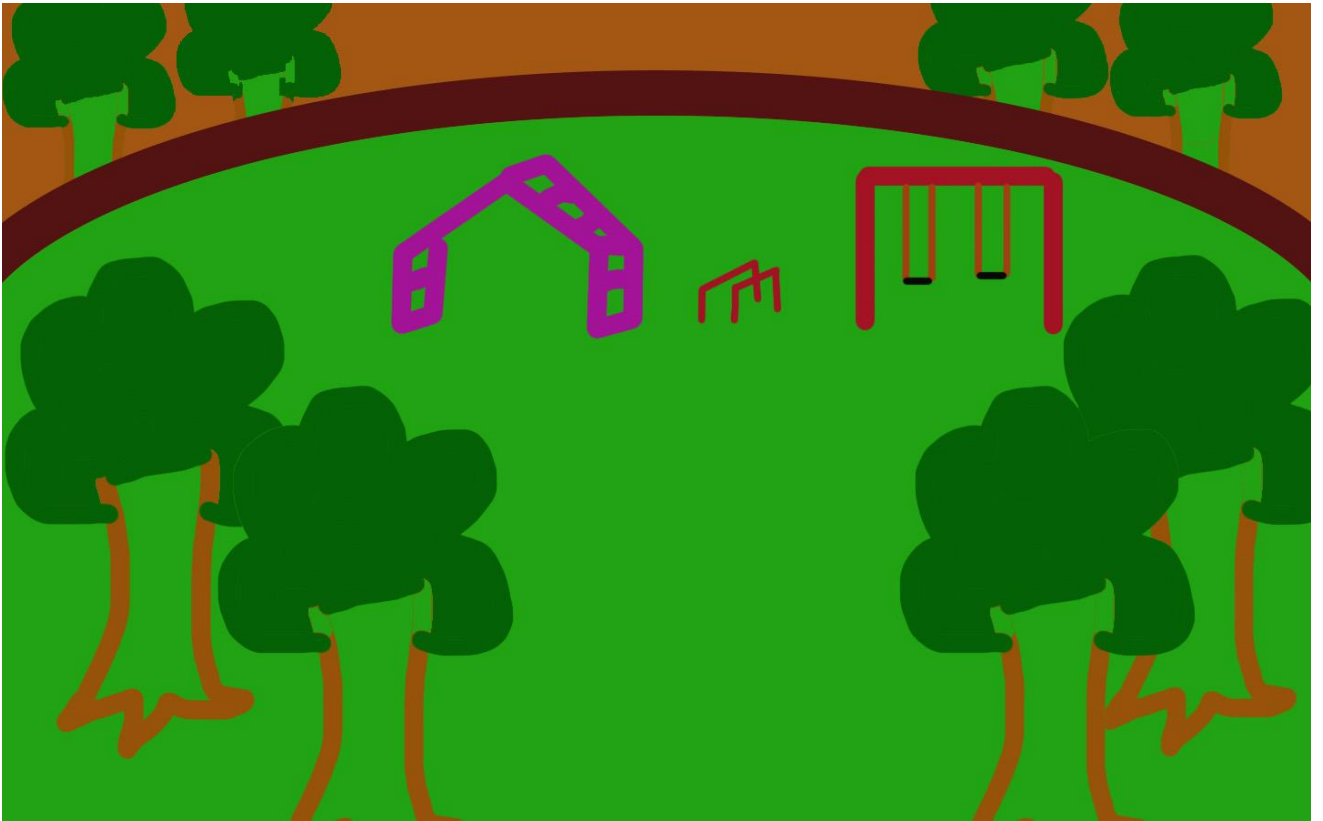
Experiment-7
Take images from different Images Sources show variation in Resolution.
Image 1: Image that has been sent over Whatsapp .

Image 2: Image that has been sent over E-mail .

Image 3: Image that has been downloaded from Internet .

Image 4: Image that has been ScreenShoted .

<p align="center">**Experiment-8**</p>

Use Effective Cropping Techniques to design a collage.

Step1: Create a base for your collage and fill it using a solid colour or gradient.

Step2: Import all your images in photoshop and bring them all on same page or canvas.

Step3: Move your Images around using move tool or press CTRL+T to reform it.

Step4: Crop your images using CROP TOOL(C) and place your images according to your prefences.

Step5: Give a title to your collage using Text tool .

Step6: Export your Collage in jpeg format.

<p align="center">**Experiment-9**</p>

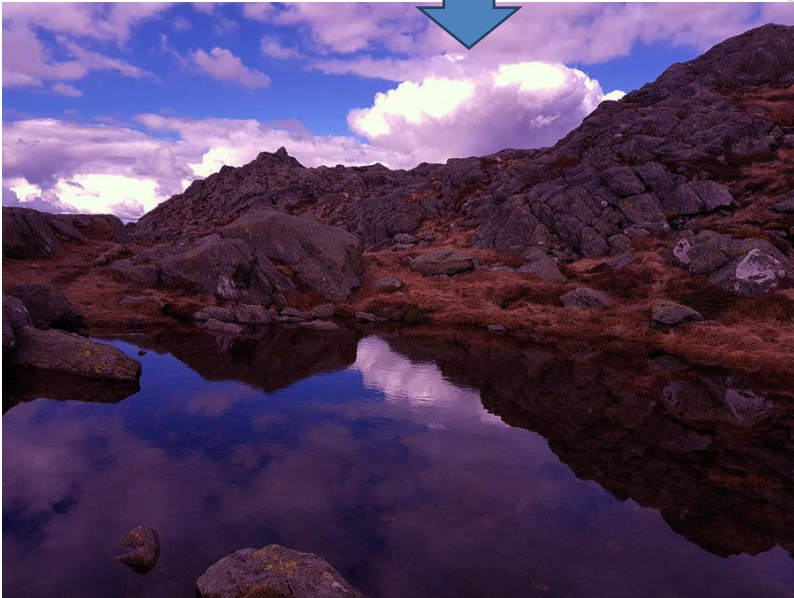**Design a scenery showing correction of Image tonality.**

Step1: Open your image in Photoshop.

Step2: Create a Brightness and Contrast layer and adjust Brightness and Contrast according to your scene .

Step3: Create a Level layer and adjust Red Blue and Green Levels in your Image.
Step4: Finally create a Curves layer and adjust the curves for Red Blue and Green in your Image.
Step5: Export your Image in jpeg format.