

Indian Institute of Information Technology  
Sonepat

# APPLICATION PROGRAMMING LAB FILE

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**BRANCH- CSE**

# 1)CREATING AN HTML WEB PAGE FORMS

## PROCEDURE

<FORM> element defines to collect user information.

<input> is used to define user input.

<label> is used to define input heading.

We use <submit> button to submit the information.

The <action> button is used to define the action when submit button is clicked.

<target> attribute specifies whether the action page will open in same page or in new tab.

There are two types of method attribute GET and POST.

If we use GET method then the data will be available in the page's address box.

The POST method does not display the information in the address field.

<name> attribute must be specified with the input element so as to perform action using action.php .

These are tags and attributes used in creating the HTML form page.

## PROGRAM

```
<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
<meta charset="utf-8">
<title>Register</title>
</head>
<body>
<center><h1>REGISTRATION FORM</h1></center>
<h5><time></time></h5>
<fieldset>
<form          action="meta.html"      method="post"
autocomplete="on">
<!--hidden input type contains hidden information that
will also be processed in action browser-->
<input type="hidden" name="recipient" value="">

<input type="hidden" name="subject" value="">
```

```
<input type="hidden" name="redirect" value="">
```

```
<!--input type text inserts a text feild to be input by user-
->
```

```
<p><feildset><label>First Name:
<input type="text" placeholder="First Name"
id="firstname"name="name" size="25"
maxlength="30">
</label>(First name)</feildset></p>
```

```
<p><label>Last Name:
<input type="text" placeholder="Last Name"
id="lastname"name="name" size="25"
maxlength="30">
</label>(Last name)</p>
```

```
<p>
<label>Date:
<input type="date"/>
(yyyy-mm-dd)
</label>
```

```
<p>
<label>E-mail address:
<input type="email" name="details"
placeholder="name@domain.com" required></label>
</p>
```

```
<p><label>Phone Number
<input type="tel" name="details"
placeholder="#####" pattern="\d{10}"
required></label>
</p>
```

```
<p>
<label>Datetime Local:
<input type="datetime-local"/>
(yyyy-mm-ddThh:mm, such as 2012-01-27T03:15)
</label>
```

```
<p>
<label for="txtList">Qualifications:
```

```

<input                type="text"                id="txtList"
placeholder="Qualifications" list="Qualifications">
<datalist id="Qualifications">
<option value="Matric">
<option value="High School">
<option value="UG">
<option value="PG">
</datalist>
</label>
</p>
<p>
<strong>Team you liked</strong><br>
<label>Programming team
<input    type="checkbox"      name="teamselection"
value="programming">
</label>
<label>Creative team
<input    type="checkbox"      name="teamselection"
value="creative">
</label>
<label>Multimedia team
<input    type="checkbox"      name="teamselection"
value="multimedia">
</label>
<label>Testing team
<input    type="checkbox"      name="teamselection"
value="testing">
</label>
</p>
<p>
<strong>Confirm</strong>
<label>Yes
<input type="radio" name="confirmation" value="yes"
checked>
</label>
<label>No
<input type="radio" name="confirmation" value="no">
<!--name class must be same in a given paragraph-->
</label>
</p>
<p>
<label>Rate our site
<select name="rating">

```

```
<option selected>Amazing</option>
<option>10</option>
<option>9</option>
<option>8</option>
<option>7</option>
<option>6</option>
<option>5</option>
<option>4</option>
<option>3</option>
<option>2</option>
<option>1</option>
<option>Awful</option>
</select>
</label>
</p>
<p>
<label>
Comments<br>
<textarea name="comments" rows="4" cols="40">Enter
your comment</textarea>
</label>
</p>
<p>
<input type="submit" value="Submit">
<input type="reset" value="Clear">
</p>
</form>
</feildset>
</body>
</html>
```

# OUTPUT:

< > ↺ 🌐 VPN 📄 file:///E:/1.html

## REGISTRATION FORM

First Name:  (First name)

Last Name:  (Last name)

Date:  (yyyy-mm-dd)

E-mail address:

Phone Number

Datetime Local:  (yyyy-mm-ddThh:mm, such as 2012-01-27T03:15)

Qualifications:

**Team you liked**

Programming team ☐ Creative team ☐ Multimedia team ☐ Testing team ☐

**Confirm** Yes ☒ No ☐

Rate our site

**Comments**

Enter your comment

Submit

Clear

---

## 2)CREATING HOME PAGE USING HTML

### PROCEDURE

In this program I have used both HTML and CSS to make the page creative and look great.

The <style> tag is used to apply various CSS to the program such as background colour, text colour, text (italics, bold, underlined) etc.

In the <body> I have used <div> tag to make separate divisions for separate text and to apply different CSS to different divisions.

The <id> tag is used to make separate ids for various attributes and to apply different formatting styles to each of them in the <style> tag.

The <ul> tag defines the unordered list and <li> defines the list items.

<ol> defines the ordered list, we can also define whether we want to use numbers in list or characters to define various list items in an ordered list.

The <img> tag is used to add an image to our HTML page.

I have also embedded a youtube video in the HTML page using the <iframe> tag and <align> attribute to define the alignment of the frame with respect to the web page.

These are tags and attributes used in creating HOME PAGE USING HTML.

## PROGRAM

```
<html>
  <head>
    <title>Hello World!!</title>
    <style type = "text/css">
      #h1 {
        text-decoration-color: rgb(57, 99, 238);
      }
      #h2 {
        text-emphasis-color: rgb(84, 119, 226);
        position: relative;
        left: 2000px;
      }
      body {
        margin: 0px 0px 0px 0px;
        background-color: black;
        color: aliceblue ;
      }
      #frame {
        padding-top: 50px;
        padding-right: 10px;
      }
      #earth {
        border-radius: 300px;
        float: center;
        padding-left: 10px;
      }
    </style>
  </head>
  <body>
    <div id = "frame">
      <div id = "earth">
        <img alt = "A large black circle with a white border, representing the Earth." data-bbox = "100px 100px 200px 200px"/>
      </div>
    </div>
  </body>
</html>
```



```
#whole {
background-color: gray;
border-radius: 12px;
margin: 0px 100px 0px 100px;
padding-left: 10px;
padding-bottom: 10px;
padding-right: 10px;
padding-top: 50px;

}

#about-earth {
    text-align: center;
    text-size-adjust: 150%;
}

#ribbon {
    position: fixed;
    background-color: lightslategray;
    border-radius: 20px;
    margin-left: auto;
    margin-right: auto;
    width: 100%;
    text-align: center;
    font-size: large;
}

#button {
    border-radius: 10px;
    font-family: 'Franklin Gothic Medium', 'Arial Narrow',
Arial, sans-serif;
```

```

        font-weight: 200;
        background-color: dodgerblue;
        height: 7%;
        width: 7%;
    }
    #button:hover {
        background-color: darkblue;
        color: antiquewhite;
    }
    #moon {
        text-decoration: none;
    }
    #moon:hover {
        color:darkblue;
        text-decoration: underline;
        text-transform: uppercase ;
    }

```

</style>

</head>

<body>

<div id="ribon"><p>Welcome to the 1<sup>st</sup> website .  
Please suggest changes &#123Only Those that I can change&#125</p></div>

<div id="whole"><p id="h1"><h1 align="center">Hello World!!</h1></p>

<p id="h2"><h2 align="center">A few facts about world we live  
in</h2></p>

<iframe id="frame" width="560" height="315"  
src="https://www.youtube.com/embed/FG0fTKAqZ5g" frameborder="0"  
allow="accelerometer; autoplay; encrypted-media; gyroscope; picture-in-  
picture" allowfullscreen align="right"></iframe>

<p></p>

<p id="about-earth">Earth is a third planet from the Sun and is the largest of terrestrial planets. Unlike the other planets in solar system that are named after classic deities the Earth's name comes from the<br>

Anglo-Saxon word <strong>erda</strong> which means ground or soil. The earth was formed approximately 4.54 billion years ago and is only known planet to support life.

<hr>

<h2>About earth</h2>

<ul>

<li><b>Mass</b>:5.972&#215;10<sup>24</sup>kg

<li><b>Diameter at equator</b>:12,756km</li>

<li><b>Satellites</b>:<a id="moon" href="https://en.wikipedia.org/wiki/Moon">The moon</a>

</ul>

<hr>

<p><h2>Top 3 earth facts</h2></p>

<ol>

<li>The earth rotation is gradually slowing.</li>

<li>A year isn't exactly 365 days, and the earth doesn't take 24 hours to rotate.</li>

<li>70&#37; of Earth's surface is water, and only one third of its fresh water is unfrozen.</li>

</ol>

</ul>

<hr>

<table>

<tbody>

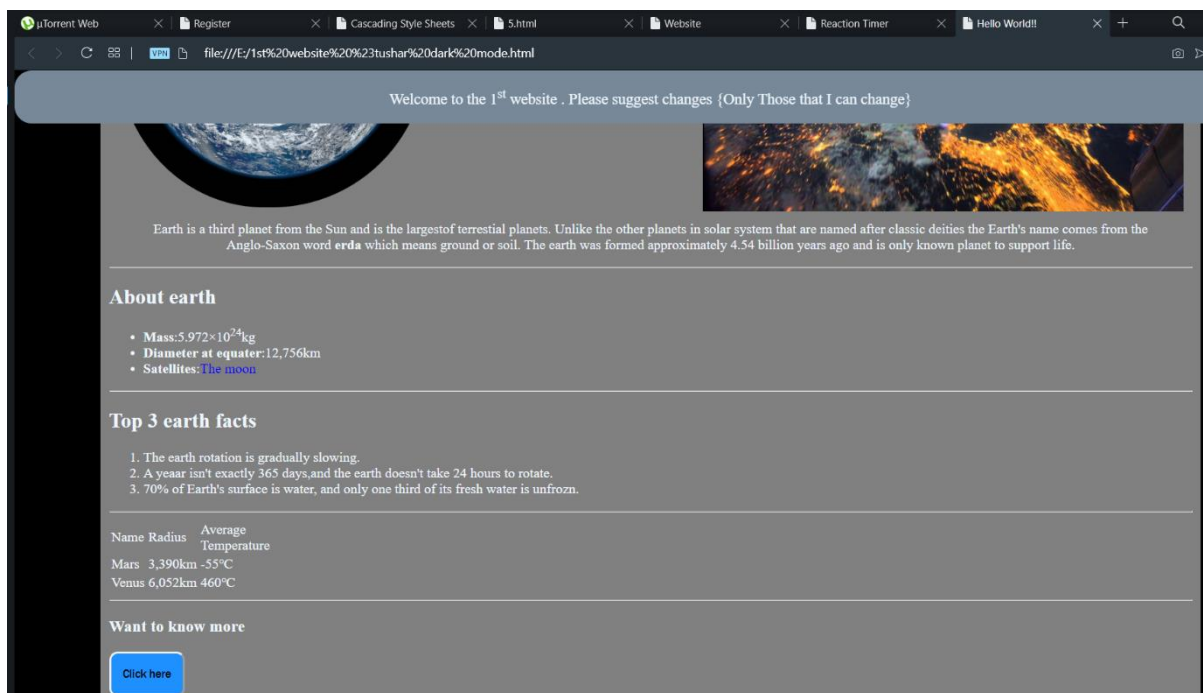
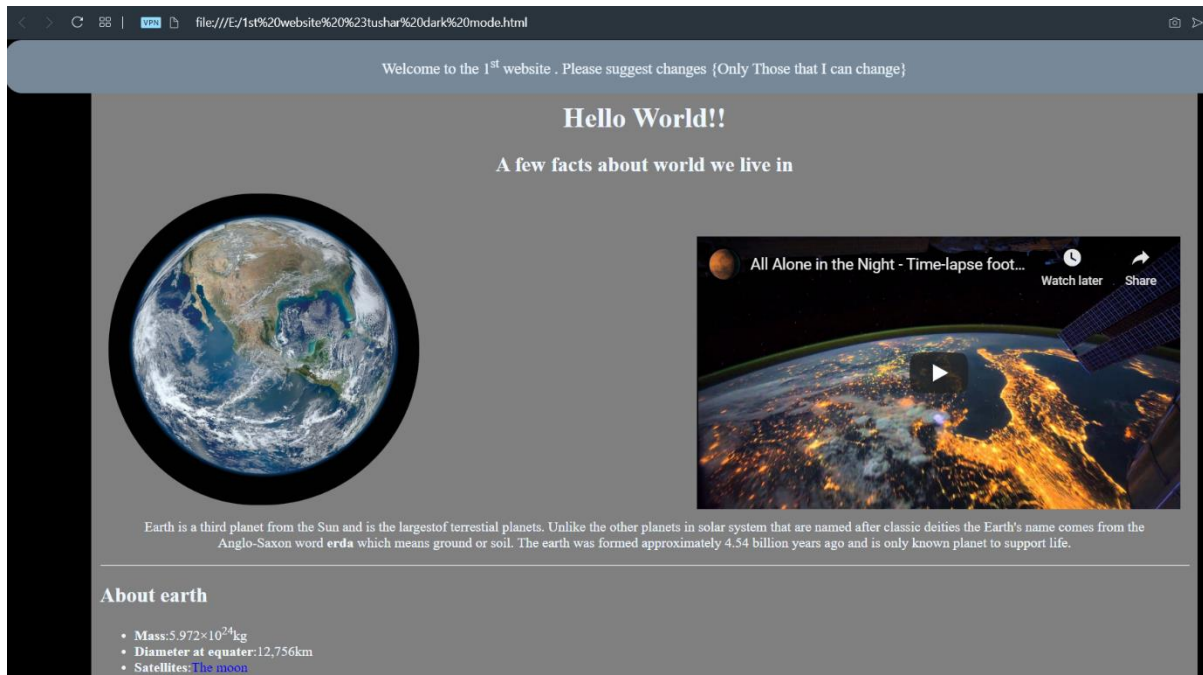
```

        <thead>
            <tr>
                <td>Name</td>
                <td>Radius</td>
                <td>Average<br>Temperature</td>
            </tr>
        </thead>
        <tr>
            <td>Mars</td>
            <td>3,390km</td>
            <td>-55&#8451</td>
        </tr>
        <tr>
            <td>Venus</td>
            <td>6,052km</td>
            <td>460&#8451</td>
        </tr>
    </tbody>
</table>

<hr>
<p><h3>Want to know more</h3></p>
<p><form                action="https://www.livescience.com/19102-amazing-facts-
earth.html">
    <input    id="button"    type="submit"    value="Click    here"
target="_blank">
    </form></p></div>
</body>
</html>

```

# OUTPUT:



### 3) CREATING XHTML AND CSS AND UNDERSTANDING ITS USE IN CREATING WEB PAGES

#### PROCEDURE

XHTML or Extensible Hypertext Markup Language is often referred to as strictly followed HTML document. There are certain compulsory and predefined rules:

1-Tags must be properly nested.

2-Tag name must be in lowercase.

3-All tags must be properly closed even empty tags.

It was developed by W3C i.e. WORLD WIDE WEB CONSORTIUM.

It consists of 3 parts DOCTYPE, HEAD and BODY.

All the other tags and attributes are same as simple html document.

#### PROGRAM

```
<!DOCTYPE  
html>
```

```
<html lang="en" dir="ltr">  
<head>  
  <meta charset="utf-8">  
  <title>Cascading Style Sheets</title>  
  <style media="screen" type="text/css">  
    body  
    {  
      background-color: rgb(0,0,122,0.3);  
      //background-image: url(img1.png);  
      // background-repeat: no-repeat;  
      // background-size: contain;  
    }  
    p  
    {  
      padding-top:10pt;  
      paddind-bottom:10pt;  
      text-indent: 1em;
```

```
}
em
{
  font-weight : normal;
  color : #6F0F0F;
}
h1
{
  font-family : tahoma,san-serif,helvetica;
  border-bottom:2px dotted blue;
}
p
{
  font-size : 12pt;
  font-family : san-serif,arial;
}
.special
{
  color : purple;
}
a
{
  text-decoration:none;
}
a:hover
{
  text-decoration: underline;
  font-weight:bold;
  color:green;
}
a:visited
{
  color:hotpink;
}
a:active
{
  background-color:rgba(126, 0, 0, 0.4);
}
li
{
  margin-left: 40px;
}
aside
```

```

    {
      font-size: .8em;
      float:right;
    }
table
{
  border-collapse: collapse;
  border-style:outset;
}
</style>
</head>
<body>
  <h1 class="special"><center>Cascading Style
Sheets(CSS3)</center></h1>
  <a href="#W3C">Go to W3C</a>
  <h3>WHAT IS CSS3?</h3>
  <p>Formatting and presentation of any HTML
document is done by using cascading style
sheets(CSS3).</p>
  <p style="font-size: 18pt;">The th\ree way of using
CSS3 are : </p>
  <ul>
    <li>INLINE STYLING</li>
    <li>EMBEDDED STYLE SHEETS</li>
    <li>LINKING EXTERNAL STYLE SHEETS</li>
  </ul>
  <p>This page is to demonstrate the use of CSS3 in
our HTML document. The CSS is used to style your html
doc. file as it can be used in three ways by embedding it
in your elememt tag the second way is to use the style
element tag in the head of your HTML file and then
calling the following tag for styling the last method is to
create a seperate file of css and then linking it to yur html
doc. file using link tag and href attribute. </p>
  <p>The process of linking external style sheets to
your HTML document is also known as skinning.</p>
  <h3>Benefits of using CSS3</h3>
  <ol>
    <li>Improved control over formatting</li>
    <li>Improves site maintainability</li>
    <li>Improves page download speed</li>
    <li>Improves output flexibility</li>
  </ol>

```



```

<h3 >CSS3 Properties</h3>
<table border="1px" width="50%">
<thead>
<td>Property Type</td>
<td>Property</td>
</thead>
<tr>
<td rowspan="5">FONTS</td>
<td>font-family</td>
</tr>
<tr>
<td>font-size</td>
</tr>
<tr>
<td>font-style</td>
</tr>
<tr>
<td>font-weight</td>
</tr>
<tr>
<td>font-face</td>
</tr>
<tr>
<td rowspan="5">TEXT</td>
<td>letter-spacing</td>
</tr>
<tr>
<td>line-height</td>
</tr>
<tr>
<td>text-align</td>
</tr>
<tr>
<td>text-decoration</td>
</tr>
<tr>
<td>text-indent</td>
</tr>
<tr>
<td rowspan="5">COLOR AND BACKGROUND</td>
<td>background-color</td>
</tr>
<tr>

```

<td>background-image</td>
</tr>
<tr>
<td>background-position</td>
</tr>
<tr>
<td>background-repeat</td>
</tr>
<tr>
<td>color</td>
</tr>
<tr>
<td rowspan="6">BORDERS</td>
<td>border-color</td>
</tr>
<tr>
<td>border-width</td>
</tr>
<tr>
<td>border-style</td>
</tr>
<tr>
<td>border-top</td>
</tr>
<tr>
<td>border-top-color</td>
</tr>
<tr>
<td>border-top-width</td>
</tr>
<tr>
<td rowspan="4">SPACING</td>
<td>padding</td>
</tr>
<tr>
<td>padding-top,padding-bottom,padding-right,padding-left</td>
</tr>
<tr>
<td>margin</td>
</tr>
<tr>

<td>margin-top,margin-bottom,margin-left,margin-right</td>
</tr>
<tr>
<td rowspan="5">SIZING</td>
<td>max-height</td>
</tr>
<tr>
<td>max-width</td>
</tr>
<tr>
<td>min-height</td>
</tr>
<tr>
<td>min-width</td>
</tr>
<tr>
<td>width</td>
</tr>
<tr>
<td rowspan="5">LAYOUTS</td>
<td>bottom,left,top and right</td>
</tr>
<tr>Overflow</tr>
<tr>
<td>position</td>
</tr>
<tr>
<td>visibility</td>
</tr>
<tr>
<td>z-index</td>
</tr>
<tr>
<td rowspan="3">LISTS</td>
<td>list-style</td>
</tr>
<tr>
<td>list-style-image</td>
</tr>
<tr>
<td>list-style-type</td>
</tr>

</table>

<h3>Applying style class</h3>

<p>To apply style class to specify the special style to a particular paragraph over a html document containing several paragraph element in the html document user shall declare the class attribute in that particular html element and then call it later in the embedded style sheet by using period(.)class. </p>

<details><summary>Psuedo Class</summary>

<p>Psuedo class gives you access to information that's not declared in the document, such as whether the mouse hovering over an element or whether the user previously clicked(visited) a particular hyperlink</p>

</details>

<h3>Measurement Unit in CSS</h3>

<p>You can classify the measurement in CSS3 in the following type :</p>

<ol>

<li>Relative : A pixel is a relative-length measurement- it varies in size, based on screen resolution. Other relative length includes em(which, as a measurement means the font's uppercase M height-the most frequently used font measurement), ex(the font's x-height-usually set to a lowercase x's height) and percentage(e.g., font-size:50%)</li>

<li>Absolute : They do not vary in size based on the system. These units are inches(in), centimeter(cm), millimeter(mm), point(pt; 1pt=1/72inches), and picas(pi; 1pc=12points)</li>

</ol>

<p>Whenever possible, use relative-length measurement. If you use absolute-length measurement, your document may not scale well on some client browsers(e.g., smartphones) </p>

<aside id="W3C">

To ensure that your style sheets work in various web browsers, test them on many web browsers, and use the <a href="http://www.google.com" target="\_blank">W3C CSS validator.</a>

</aside>

</body>

</html>

# OUTPUT:

**Cascading Style Sheets(CSS3)**

Go to W3C

### WHAT IS CSS3?

Formatting and presentation of any HTML document is done by using cascading style sheets(CSS3).

The three way of using CSS3 are :

- INLINE STYLING
- EMBEDDED STYLE SHEETS
- LINKING EXTERNAL STYLE SHEETS

This page is to demonstrate the use of CSS3 in our HTML document. The CSS is used to style your html doc. file as it can be used in three ways by embedding it in your element tag the second way is to use the style element tag in the head of your HTML file and then calling the following tag for styling the last method is to create a separate file of css and then linking it to your html doc. file using link tag and href attribute.

The process of linking external style sheets to your HTML document is also known as skinning.

### Benefits of using CSS3

1. Improved control over formatting
2. Improves site maintainability
3. Improves page download speed
4. Improves output flexibility

### CSS3 Properties

Property Type	Property
Overflow	
	font-family
	font-size
	font-style
	font-variant
	font-weight
	text-align
	text-decoration
	text-indent
	text-orientation
	text-overflow
	text-shadow
	text-transform
	vertical-align
	white-space
	word-break
	word-spacing
	word-wrap
	z-index

### Applying style class

To apply style class to specify the special style to a particular paragraph over a html document containing several paragraph element in the html document user shall declare the class attribute in that particular html element and then call it later in the embedded style sheet by using period(.)class.

► Pseudo Class

### Measurement Unit in CSS

You can classify the measurement in CSS3 in the following type :

1. Relative : a pixel is a relative-length measurement- it varies in size, based on screen resolution. Other relative length includes em(which, as a measurement means the font's uppercase M height-the most frequently used font measurement), ex(the font's x-height-usually set to a lowercase x's height) and percentage(e.g., font-size:50%)
2. Absolute : They do not vary in size based on the system. These units are inches(in), centimeter(cm), millimeter(mm), point(pt; 1pt=1/72inches), and pica(pi; 1pc=12points)

Whenever possible, use relative-length measurement. If you use absolute-length measurement, your document may not scale well on some client browsers(e.g., smartphones)

To ensure that your style sheets work in various web browsers, test them on many web browsers, and use the [W3C CSS Validation Service](#).

CSS3 Properties	
Overflow	
Property Type	Property
FONTS	font-family
	font-size
	font-style
	font-weight
	font-face
TEXT	letter-spacing
	line-height
	text-align
	text-decoration
	text-indent
COLOR AND BACKGROUND	background-color
	background-image
	background-position
	background-repeat
	color
BORDERS	border-color
	border-width
	border-style
	border-top
	border-top-color
SPACING	border-top-width
	padding
	padding-top,padding-bottom,padding-right,padding-left
	margin
	margin-top,margin-bottom,margin-left,margin-right
SIZING	max-height
	max-width
	min-height
	min-width
	width
	bottom,left,top and right
	position

## **4)SETTING UP AND CONFIGURATION OF APACHE TOMCAT SERVER**

### **Procedure:-**

#### **Step 1**

##### **Download and Install Tomcat**

1. Go to <http://tomcat.apache.org/download-70.cgi> then go to the Binary Distribution/Core/ and download the "zip" package (for example "apache-tomcat-7.0.40.zip")
2. Now **unzip** the downloaded file into a directory of our choice.

#### **Step 2**

Check the installed directory to ensure it contains the following sub-directories:

- a. bin folder
- b. logs folder
- c. webapps folder
- d. work folder
- e. temp folder
- f. conf folder
- g. lib folder

#### **Step 3**

Create Environment variable JAVA\_HOME.

##### **Configure Tomcat Server**

The configuration files of the Apache Tomcat Server are located in the "conf" sub-directory of our

Tomcat installed directory, for example "E:\myserver\tomcat7.0.40\conf". There are 4 configuration

XML files:

1. context.xml file
2. tomcat-users.xml file
3. server.xml file
4. web.xml file

Before proceeding, make a BACKUP of the configuration files.

#### **Step 4(a) "conf\web.xml"; Enabling a Directory Listing**

Open the configuration file "web.xml". We shall enable the directory listing by changing "listings" from

"false" to "true" for the "default" servlet.

<param-value>**true**</param-value> like:

#### **Step 4(b) "conf\server.xml file"; set the TCP Port Number**

Open the file "server.xml" in a text editor.

The default port number of Tomcat is 8080. We can change it according to our need.

#### **Step 4(c) "conf\context.xml"; Enabling Automatic Reload**

In that we set reloadable="true" to the <Context> element to enable automatic reload after code

#### **Step 4(d) (Optional) "conf\tomcat-users.xml"**

It is used to manage Tomcat by adding the highlighted lines, inside the <tomcat-users> elements.

In that we can add a password and username as an optional step.

#### **Step 5**

Now, start the tomcat server

Executable programs and scripts are kept in the "bin" sub-directory of the Tomcat installed directory

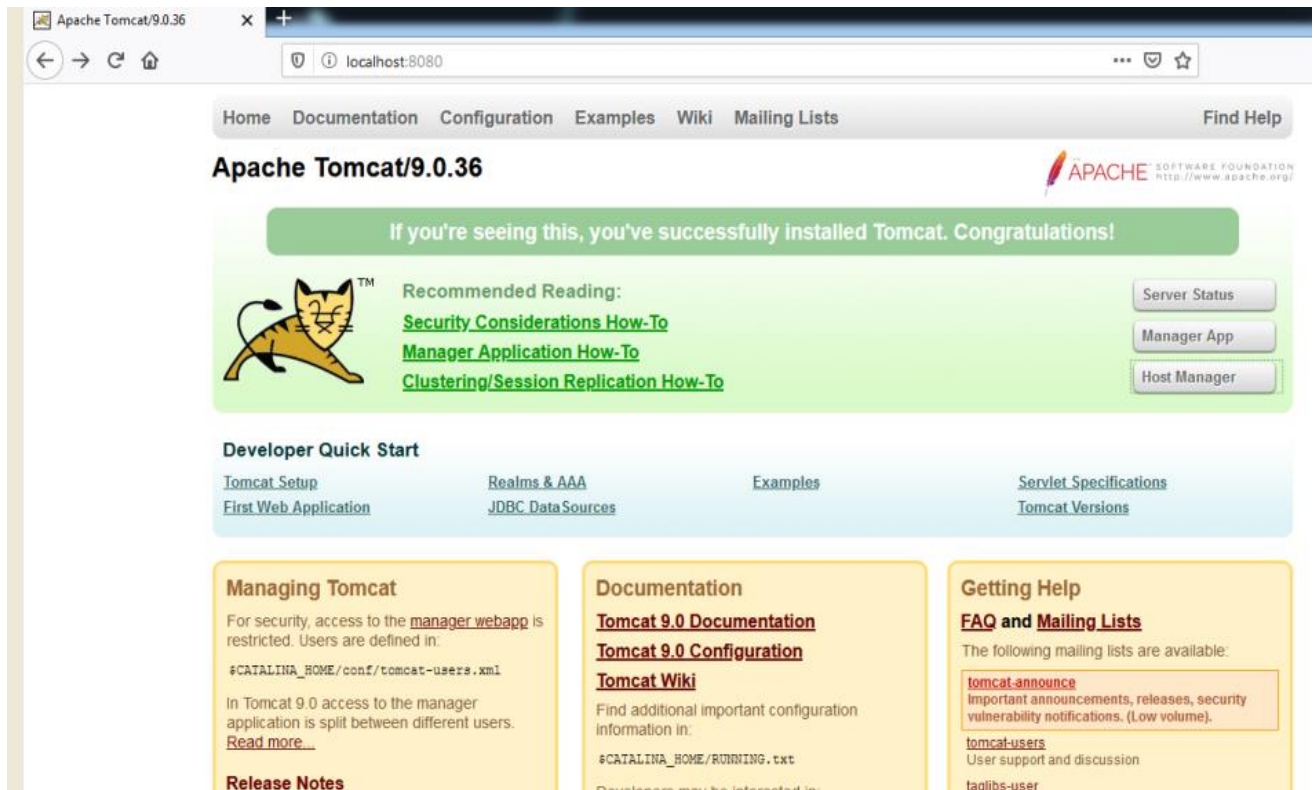
#### **Step 5(a) Start Server**

#### **Step 5(b) Access the Server**

Open a browser then enter the URL "http://localhost:8080" to access the Tomcat server's welcome page.



## Output-




The screenshot shows a web browser window with the address bar set to `localhost:8080`. The page title is "Apache Tomcat/9.0.36". The navigation bar includes links for Home, Documentation, Configuration, Examples, Wiki, Mailing Lists, and a Find Help button. A green banner at the top of the main content area reads: "If you're seeing this, you've successfully installed Tomcat. Congratulations!". Below this banner, on the left, is the Tomcat logo (a stylized orange cat). To the right of the logo, under the heading "Recommended Reading:", are three links: [Security Considerations How-To](#), [Manager Application How-To](#), and [Clustering/Session Replication How-To](#). Further right are three buttons: "Server Status", "Manager App", and "Host Manager". Below the banner is a "Developer Quick Start" section with a light blue background, containing links for [Tomcat Setup](#), [First Web Application](#), [Realms & AAA](#), [JDBC Data Sources](#), [Examples](#), [Servlet Specifications](#), and [Tomcat Versions](#). The bottom of the page features three yellow boxes. The first box, "Managing Tomcat", explains that access to the `manager.webapp` is restricted and users are defined in `$CATALINA_HOME/conf/tomcat-users.xml`. It also notes that in Tomcat 9.0, access to the manager application is split between different users and provides a [Read more](#) link. The second box, "Documentation", lists links for [Tomcat 9.0 Documentation](#), [Tomcat 9.0 Configuration](#), and [Tomcat Wiki](#). It also mentions finding additional important configuration information in `$CATALINA_HOME/RUNNING.txt` and that developers may be interested in... The third box, "Getting Help", lists [FAQ and Mailing Lists](#) and states that the following mailing lists are available: [tomcat-announce](#) (important announcements, releases, security vulnerability notifications, low volume), [tomcat-users](#) (user support and discussion), and [taglibs-user](#).

Apache Tomcat/9.0.36

Home Documentation Configuration Examples Wiki Mailing Lists Find Help

### Apache Tomcat/9.0.36

If you're seeing this, you've successfully installed Tomcat. Congratulations!

 Recommended Reading:

- [Security Considerations How-To](#)
- [Manager Application How-To](#)
- [Clustering/Session Replication How-To](#)

Server Status  
Manager App  
Host Manager

#### Developer Quick Start

- [Tomcat Setup](#)
- [First Web Application](#)
- [Realms & AAA](#)
- [JDBC Data Sources](#)
- [Examples](#)
- [Servlet Specifications](#)
- [Tomcat Versions](#)

#### Managing Tomcat

For security, access to the `manager.webapp` is restricted. Users are defined in:

```
$CATALINA_HOME/conf/tomcat-users.xml
```

In Tomcat 9.0 access to the manager application is split between different users.  
[Read more](#)

[Release Notes](#)

#### Documentation

- [Tomcat 9.0 Documentation](#)
- [Tomcat 9.0 Configuration](#)
- [Tomcat Wiki](#)

Find additional important configuration information in:

```
$CATALINA_HOME/RUNNING.txt
```

Developers may be interested in:

#### Getting Help

##### FAQ and Mailing Lists

The following mailing lists are available:

- [tomcat-announce](#)  
Important announcements, releases, security vulnerability notifications. (Low volume).
- [tomcat-users](#)  
User support and discussion
- [taglibs-user](#)

## **5)UNDERSTANDING MODIFICATION OF WEB.XML**

### **PROCEDURE**

The web.xml file is deployment descriptor for a servlet-based java web application.

Among other things, it declares which servlets exist and which URLs they handle. The part you cite defines a Servlet Filter.

Servlet filters can do all kinds of preprocessing on requests.

```
<?xml version="1.0" encoding="UTF-8"?>
```

### **Advantages of web.xml files**

- The first benefit of the xml is we can write it in our own markup language. There is no restriction to limited sets of tags. By defining our own tag we can create a markup language in terms of specific problem.
- Searching the data is easy and efficient.

### **PROGRAM**

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<note>
```

```
  <to>Paras</to><br>
```

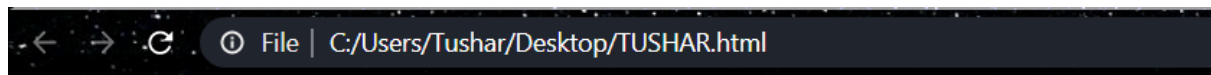
```
  <from>Tushar</from><br>
```

```
  <heading>Reminder</heading><br>
```

```
  <body>Have a great day!</body>
```

```
</note>
```

## OUTPUT:



Paras  
Tushar  
Reminder  
Have a great day!

## 6)CREATING WEBSITES USING PHP

### PROCEDURE

PHP stands for Hypertext Preprocessor.

\$ Symbol is used to define a variable in php.

POST method is used to get all the information input by the user after he/she clicks the submit button.

<input> tag is an attribute of <form> element. It is used to input various data from the user.

The php is written inside <?php....?> .

“echo” is used to print something on the screen.

### PROGRAM

```
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-
scale=1.0">
        <title>Website</title>
    </head>
    <body>
        <?php

$name = $email = $gender = $comment = $website = "";

if ($_SERVER["REQUEST_METHOD"] == "POST") {
    $name = test_input($_POST["name"]);
    $email = test_input($_POST["email"]);
    $website = test_input($_POST["website"]);
    $comment = test_input($_POST["comment"]);
    $gender = test_input($_POST["gender"]);
}

function test_input($data) {
```

```

$data = trim($data);
$data = stripslashes($data);
$data = htmlspecialchars($data);
return $data;
}
?>

```

```

<h2>PHP Form Validation Example</h2>
<form method="post" action="<?php echo
htmlspecialchars($_SERVER["PHP_SELF"]);?>">
  Name: <input type="text" name="name">
  <br><br>
  E-mail: <input type="text" name="email">
  <br><br>
  Website: <input type="text" name="website">
  <br><br>
  Comment: <textarea name="comment" rows="5"
cols="40"></textarea>
  <br><br>
  Gender:
  <input type="radio" name="gender" value="female">Female
  <input type="radio" name="gender" value="male">Male
  <input type="radio" name="gender" value="other">Other
  <br><br>
  <input type="submit" name="submit" value="Submit">
</form>

```

```

<?php
echo "<h2>Check Your Entry:</h2>";
echo $name;
echo "<br>";
echo $email;
echo "<br>";
echo $website;
echo "<br>";
echo $comment;
echo "<br>";
echo $gender;
?>

</body>
</html>

```

## OUTPUT:



A screenshot of a web browser window displaying a form titled "PHP Form Validation Example". The browser's address bar shows the file path "file:///E:/6.html". The form contains several input fields and a submit button. The fields are labeled "Name:", "E-mail:", "Website:", and "Comment:". The "Comment:" field is a larger text area. Below the "Comment:" field, there is a "Gender:" label followed by three radio buttons labeled "Female", "Male", and "Other". At the bottom of the form is a "Submit" button.

PHP Form Validation Example

Name:

E-mail:

Website:

Comment:

Gender: ☐ Female ☐ Male ☐ Other

## 7)UNDERSTANDING JAVASCRIPT

### PROCEDURE

JAVASCRIPT was originally created to “make web pages alive”. For understanding javascript, I have created a program that will give you yhe feeling that the page is alive.

I call it as reaction timer. The program is designed in such a way that some squares and circles will appear on the screen randomly in random colours and random sizes and you have to click on the figures ASAP.

It will then tell you the time which you took to click on the image.

There is the use of Math.random() function for generating random colours and random sizes and shapes and to record the time I have used the setTimeout() function.

This program is a very good example for understanding javascript, its various attributes, tags such as document.getElementById() etc.

### PROGRAM

```
<html>
<head>
<title>Reaction Timer</title>
<style type="text/css">
body {
font-family: sans-serif;
}
#shape {
width: 200px;
height: 200px;
background-color: red;
```

```
display: none;
position: relative;
}
.bold {
font-weight: bold;
}
</style>
</head>
<body>
<h1>Test Your Reactions!</h1>
<p>Click on the boxes and circles as quickly as you can!</p>
<p class="bold">Your time: <span
id="timeTaken"></span></p>
<div id="shape"></div>
<script type="text/javascript">
var start = new Date().getTime();
function getRandomColor() {
var letters = '0123456789ABCDEF'.split("");

var color = '#';

for (var i = 0; i < 6; i++ ) {

color += letters[Math.floor(Math.random() * 16)];

}
```



```
return color;
```

```
}
```

```
function makeShapeAppear() {
```

```
var top = Math.random() * 400;
```

```
var left = Math.random() * 400;
```

```
var width = (Math.random() * 200) + 100;
```

```
if (Math.random() > 0.5) {
```

```
document.getElementById("shape").style.borderRadius = "50%";
```

```
} else {
```

```
document.getElementById("shape").style.borderRadius = "0";
```

```
}
```

```
document.getElementById("shape").style.backgroundColor =  
getRandomColor();
```

```
document.getElementById("shape").style.width = width + "px";
```

```
document.getElementById("shape").style.height = width + "px";
```

```
document.getElementById("shape").style.top = top + "px";
```

```
document.getElementById("shape").style.left = left + "px";
```

```
document.getElementById("shape").style.display = "block";
```

```
start = new Date().getTime();
```

```
}
```

```
function appearAfterDelay() {
```

```
    setTimeout(makeShapeAppear, Math.random() * 2000);
```

```
}
```

```
appearAfterDelay();
```

```
document.getElementById("shape").onclick = function() {
```

```
    document.getElementById("shape").style.display = "none";
```

```
    var end = new Date().getTime();
```

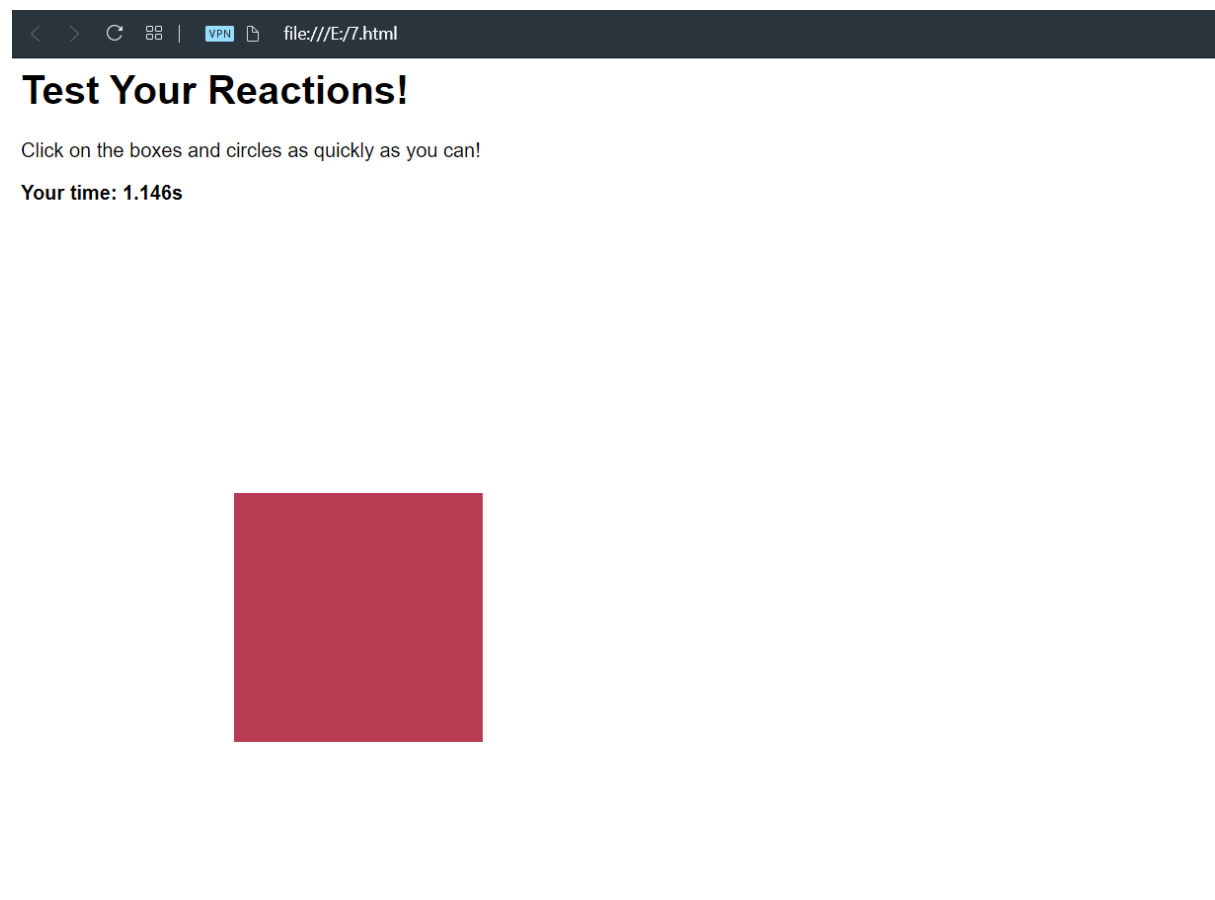
```
    var timeTaken = (end - start) / 1000;
```

```
    document.getElementById("timeTaken").innerHTML = timeTaken + "s";
```

```
    appearAfterDelay();
```

```
}  
</script>  
</body>  
</html>
```

## OUTPUT:



## **8)CREATING A WEB PAGE WITH BACK-END IN PHP AND FRONT-END IN JAVASCRIPT AND HOSTING IT ON APACHE TOMCAT SERVER**

### **PROCEDURE**

In this program I have created a HTML form to take input from the user and with the help of XAMPP software I connected my php script to the MySQL database.

Further, I have used CSS in <style> tag to give the webpage an attractive look.

Many HTML tags are used in this programs such as <ul>, <div> , <form> etc.

When the user clicks the submit button I have used the <onclick> tag which activates the javascript function which contains the php script.

I have used the POST method in the form.

I created a new database in the MySQL and a new table for storing the data entered by the user.

I have used \$query and \$link functions for inserting the data of user in the MySQL table on the server.

In this way I have created a web page which uses HTML, CSS and Javascript in front end and uses PHP for back end scripting.

### **PROGRAM**

```
<html>
```

```
    <head>
```

```
        <title>
```

```
            My form
```

```
        </title>
```

```
    <style>
```

```
#form{  
  
    margin-left: 30%;  
    margin-right: 30%;  
    margin-top: 25px;  
    background-color: aqua;  
    padding-right: 50px;  
    border-radius: 20px;  
    padding: 10px 0px 10px 0px;  
  
}
```

```
.p1{  
  
    text-decoration-style: wavy;  
    font-family: cursive;  
    color:purple;  
    margin-left: 20px;  
    font-weight: bold;  
  
}
```

```
.input{
```

```
margin-left: 25px;
border-radius: 10px;
width: 80%;
height: 40px;
background-color: greenyellow;

}

.button{

border-radius: 7px;
background-color: chartreuse;
margin-left: 20%;
width: 90px;
height: 50px;

}

.button:hover{

color: aliceblue;
background-color: darkgreen;

}

body{
```

```
background-color: blueviolet;
```

```
}
```

```
ul {
```

```
list-style-type: none;
```

```
margin: 0;
```

```
padding: 0;
```

```
overflow: hidden;
```

```
background-color: #333;
```

```
}
```

```
li {
```

```
float: left;
```

```
}
```

```
li a {
```

```
display: block;
```

```
color: white;
```

```
text-align: center;
```

```
padding: 14px 16px;
```

```
text-decoration: none;
```

```
}
```

```
li a:hover:not(.active) {
```

```
background-color: #111;
```

```
}
```

```
.active {
```

```
background-color: #4CAF50;
```

```
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<h1 style="text-align: center;color: white;font-style: italic;font-weight: bolder;">Fill the form</h1>
```

```
<ul>
```

```
<li><a class="active"
href="http://iiitsonapat.ac.in/">Home</a></li>
```

```
<li><a
href="http://iiitsonapat.ac.in/admissions/overview">Admissions</a></li>
```

```
<li><a
href="http://iiitsonapat.ac.in/placements">Placements</a></li>
```

```
<li><a href="http://iiitsonapat.ac.in/contact-
us">Contact</a></li>
```



</ul>

<div id="form">

<form action="/tushar/FORM NEW.php" method="post">

<p class="p1"> Name: <br> <input name="name" id="name" class="input" type="text" placeholder="Enter Your Name" ></p>

<p class="p1"> Roll number: <br> <input name="roll" id="roll" class="input" type="text" placeholder="Roll Number"></p>

<p class="p1"> Branch: <br> <input name="branch" id="branch" class="input" type="text" placeholder="Enter Your Branch"></p>

<p class="p1"> Email:<br> <input name="email" id="email" class="input" type="email" placeholder="example@mail.com"></p>

<P class="p1"> Nationality:<br>

<input name="nation" id="nation" class="input" type="text" placeholder="Your Nationality" >

</P>

```
<p class="p1">Current Institute:<br> <input name="college"
id="college" class="input" type="text" placeholder="Name of
Institution"></p><br>
```

```
<p><input class="button" type="submit" onclick="register()">
<input class="button" type="reset"></p>
```

```
</form>
```

```
</div>
```

```
<script>
```

```
function register(){
```

```
<?php
```

```
$link=mysqli_connect("localhost","root","","tushar1");
```

```
if(mysqli_connect_error()){
```

```
die("there was an error.");
```

```
}
```

```
$name=$_POST['name'];
```

```
$roll=$_POST['roll'];
```

```
$email=$_POST['email'];
```

```
$branch=$_POST['branch'];
```

```
$college=$_POST['college'];
```

```
$nation=$_POST['nation'];
```

```
$query="INSERT INTO  
`form`(`name`,`roll`,`branch`,`email`,`nation`,`college`)  
VALUES('$name','$roll','$branch','$email','$nation','$college')";
```

```
mysqli_query($link,$query);
```

```
$query="SELECT * FROM form";
```

```
if($result=mysqli_query($link,$query)){
```

```
    $row=mysqli_fetch_array($result);
```

```
    echo "NAME=".$row[1];
```

```
    echo " ROLL=".$row[2];
```

```
    echo " BRANCH=".$row[3];
```

```
    echo " EMAIL=".$row[4];
```

```
    echo " NATION=".$row[5];
```

```
    echo " COLLEGE=".$row[6];
```

```
}
```

```
?>
```

```
}
```

```
</script>
```

```
</body>
```

```
</html>
```

# OUTPUT

My form

localhost/tushar/FORM%20NEW.php

## Fill the form

Home Admissions Placements Contact

**Name:**  
Enter Your Name

**Roll number:**  
Roll Number

**Branch:**  
Enter Your Branch

**Email:**  
example@mail.com

**Nationality:**  
Your Nationality

**Current Institute:**  
Name of Institution

Submit Reset

My form

localhost / 127.0.0.1 / tushar1 /

localhost/phpmyadmin/sql.php?server=1&db=tushar1&table=form&pos=0

Server: 127.0.0.1 Database: tushar1 Table: form

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Showing rows 0 - 0 (1 total, Query took 0.0012 seconds.)

SELECT \* FROM `form`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

	index	name	roll	branch	email	nation	college
<input type="checkbox"/>		Tushar	50	Cse	tusharupadhyay55@gmail.com	Indian	INDIAN INSTITUTE OF INFORMATION TECHNOLOGY SONIPAT

☐ Edit ☐ Copy ☐ Delete

☐ Check all | With selected: ☐ Edit ☐ Copy ☐ Delete ☐ Export

Show all | Number of rows: 25 | Filter rows: Search this table

Query results operations

Print Copy to clipboard Export Display chart Create view

Bookmark this SQL query

Label:  ☐ Let every user access this bookmark

Bookmark this SQL query

Console

## 9)WRITING AND UNDERSTANDING PROGRAMS IN PYTHON

### (i) PYTHON PROGRAM TO ADD TO NUMBERS

Num1= 1.5

Num2= 6.3

Sum= num1 +num2

Print(' sum of {0} and {1} is {2}'.format(num1,num2,sum))

### OUTPUT:

```
Shell
The sum of 1.5 and 6.3 is 7.8
>>> |
```

(ii) PYTHON PROGRAM TO CHECK NUMBER IS ODD OR EVEN

```
Num = int(input("enter a number:"))
```

```
If( num%2==0:
```

```
    Print ("{0} is even".format(num))
```

```
Else:
```

```
    Print("{0} is odd".format(num))
```

OUTPUT:

```
Shell
Enter a number: 5
5 is Odd
>>> |
```

(iii) PYTHON PROGRAM TO CHECK WHETHER A STRING IS PALINDROME OR NOT

```
My_str = 'mom'
My_str = my_str.casefold()
Rev_str = reversed(my_str)
If list (my_str) == list(rev_str):
    Print("the string is palindrome")
Else:
    Print ("the string is not a palindrome")
```

OUTPUT:

```
Shell
The string is a palindrome.
>>>
```


## **10)USE PYTHON LIBRARIES LIKE MATH'S STATISTICS TO CREATE PROGRAMS FOR SCIENTIFIC COMPUTATIONS**

- (i) USE PYTHON TO CREATE PROGRAMS FOR SCIENTIFIC COMPUTATIONS:

```
import math
```

```
print ("Log value for base 2: ")
```

```
print (math.log2(20))
```

	Shell
	<pre>Log value for base 2: 4.321928094887363 &gt;&gt;&gt;  </pre>



## (ii) USING PYTHON TO CALCULATE SCIENTIFIC COMPUTATIONS:


```
import math

print("What Do You Want To Calculate?")
print("A - Sine")
print("B - Cosine")
print("C - Tangent")
t = input()
print("Enter Angle In Degrees: ")
ang = float(input())
pi = math.acos(-1)
if t == "A" or t == "a":
    print("sin(" + str(ang) + ") = " + str(math.sin(ang*pi/180)))

elif t == "B" or t == "b":
    print("cos(" + str(ang) + ") = " + str(math.cos(ang*pi/180)))

elif t == "C" or t == "c":
    print("tan(" + str(ang) + ") = " + str(math.tan(ang*pi/180)))
```

## OUTPUT:

 Run	Shell
	<pre>What Do You Want To Calculate? A - Sine B - Cosine C - Tangent A Enter Angle In Degrees: 90 sin(90.0) = 1.0 &gt;&gt;&gt;  </pre>