Aim: Introduction to Web Technologies

What is web technology?

Web technology refers to the means by which computers communicate with each other using markup languages and multimedia packages. It gives us a way to interact with hosted information, like websites. Web technology involves the use of hypertext markup language (HTML) and cascading style sheets (CSS).

Browser

To view the Internet most people use a browser. Some widely used examples include Chrome and Firefox. Web browsers work by connecting over the Internet via modem or ISDN via a server or ISP to remote machines, asking for a particular document (or page) and then formatting the documents they receive for viewing on a computer.

HTTP

To do this, web browsers use a special language called HTTP (HyperText Transfer Protocol). The remote machines containing the documents run HTTP servers. When an HTTP server receives a request for a page, it sends it back to the local computer for viewing through the browser.

URL

Each document on the Web has a particular URL (Uniform Resource Locator). This tells the browser which server to go to to get the document. The syntax of the URL is simple to understand. The HTTP signifies that the language to be used is HyperText Transfer Protocol. The host name is the name of the server. For example,http://www.google.com would look for the Google server. The path is the document requested from the server. This is not the same as the file system path; the server defines its root.

HTML

HTML 4.0 is the most recent and widely accepted version of HTML and includes what are called Cascading Style Sheets (CSS). CSS allows web developers to specify many of the repeated style characteristics (e.g. font, colour, and spacing) with a particular piece of HTML code (called a tag). This enables a quick, but consistent, look throughout the site. An organisation called the World Wide Web Consortium (W3C) develops HTML standards to ensure that they are uniform across the world.

HTML is made up of text, which is the content of any web page, and tags, which define the appearance and layout of that page. HTML is simply text with an outer html tag at the start and end of the document.

Related to HTML, is XML (Extensible Mark-up Language.) XML is a meta-language that allows you to develop your own document tags.

Due to the increasing demands for entertainment by the web community, several languages have sprung up which allow users to bring animation and dynamism to their pages. These include CGI, JavaScript and PHP.

JavaScript

JavaScript is an object-based scripting language. It is embedded in the latest versions of the popular browsers and allows executables to run from the browser. This means that rather than waiting for an animated page to download from the server, the animation can run from your browser, creating dynamic HTML content. JavaScript works with your browser to detect and react to instructions that happen as a document is being loaded, rendered and used. These are signified within HTML as <script> tag.

PHP

Unlike JavaScript, which is a client-side language, PHP is a server-sided cross platform scripting language. It is a way to put instructions in your HTML files to create dynamic content. Your web server then follows these instructions. This happens before the page appears on your browser. The web server sends the PHP code with the content that the code was written to produce.

TCP/IP

In between a PC accessing the Internet (generally referred to as the "client") and the server, is the network. The network uses Transmission Control Protocol (TCP) and Internet Protocol (IP) to transmit the data and find the relevant servers and clients. Clients and servers also use HTTP.

TCP and IP are both protocols. A protocol is a set of rules that govern the way two or more computers communicate with one another. Protocols have a dual existence. First, they are a text form for programmers to understand and can be used to develop communication between computers. Secondly, they exist as a code that only computers understand. Both forms have the ultimate purpose of specifying the precise interpretation of every part of every message exchanged across the Web or network. We use protocols every time we need to communicate with another computer. If you use a networked printer, you will have used protocols to print this document. If you saved your work on a networked drive, you are using protocols.

TCP is a connection-oriented transport protocol that sends data as an unstructured stream of bytes. By using sequence numbers and acknowledgment messages, TCP can provide a sending node with delivery information about packets transmitted to a destination node. Where data loss occurs in transit, TCP can re-submit the data until it is successfully delivered or the operation times out. TCP can also discern multiple identical messages and discard them. TCP can monitor the flow of data from the sending computer and slow it down, as required, to avoid data loss.

IP (Internet Protocol) describes how servers recognise each other. IP transmits what are called datagrams over the network and reports errors in transmission. IP is responsible for fragmentation and re-assembling data with different maximum data unit sizes using IP

addresses, globally unique 32-bit numbers that identify a particular server. These addresses are assigned by the Network Information Centre. Their uniqueness ensures that any IP Network can communicate with another, just by knowing its IP address.

Practical 2

```
AIM: Write Html code to demonstrate the following tags w.r.t Panjab
University Web Application and Online Library
#basic html tags <!doctype> <html> <title> <body> <h1>to <h6> 
<br >> <hr>
#formatting tags <b> <i> <em> <font>  <small> <strong> <sub>
<sup> (font em tag missing)
Code:
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Welcome To Panjab University</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <link href="./css/style.css" rel="stylesheet">
    link rel="stylesheet" type="" href="./css/responsive.css">
  </head>
  <body>
    <header>
      <div class="container">
        <span class="logo"><img src="./images/logo.png" alt="logo not</pre>
displayed"></span>
        <h1><span class = "main"><font face="ariel">Panjab</span>
University</font></h1><br/>br>
        A premier & world class educational institution
      </div>
    </header>
    <section id = "main-search">
      <div class="container">
        <div class="search">
           <form>
             <input type="text" name="" placeholder ="Look for Places, Food Joints,</pre>
Courses ">
             <button type="submit" class="button 1">Search
```

```
</form>
        </div>
      </div>
    </section>
    <section id = "boxes">
      <div class = "container">
        <div class="box">
          <form action="../about/about.html">
             <button type="submit" class="menu">
               <img src="./images/about.svg" alt="About">
              <h3>About</h3>
               <i>About Punjab University</i>
            </button>
          </form>
        </div>
        <div class="box">
          <form action="../courses/courses.html">
            <button type="submit" class="menu">
               <img src="./images/courses.svg" alt="Courses">
               <h3>Courses</h3>
               <i>Courses offered by the University</i>
            </button>
          </form>
        </div>
        <div class="box">
          <button type="button" class="menu">
            <img src="./images/people.svg" alt="People">
            <h3>People</h3>
            <i>People Directory of the University</i>
          </button>
        </div>
        <div class="box">
          <form action="../maps/maps.html">
            <button type="button" class="menu">
               <img src="./images/maps.svg" alt="Maps">
               <h3>Maps</h3>
               <i>Interactable Map of the
University</i>
            </button>
          </form>
        </div>
        <div class="box">
          <form action="../dining/dining.html">
           <button type="button" class="menu">
            <img src="./images/dining.svg" alt="dining">
            <h3>Dining</h3>
```

```
<i>Grab a bite at these locations</i>
          </button>
         </form>
        </div>
       <div class="box">
         <form action="../news/news.html">
          <button type="button" class="menu">
            <img src="./images/news.svg" alt="News">
            <h3>News</h3>
            <i>Latest News from the University</i>
          </button>
         </form>
        </div>
       <div class="box">
          <form action="../events/events.html">
            <button type="button" class="menu">
              <img src="./images/events.svg" alt="Events">
              <h3>Events</h3>
              <i>Events to take part in the
University</i>
            </button>
          <form>
        </div>
       <div class="box">
          <form action="../libraries/libraries.html">
            <button type="button" class="menu">
              <img src="./images/libraries.svg" alt="Libraries">
              <h3>Libraries</h3>
              <i>Libraries in the University</i>
            </button>
          </form>
        </div>
        <div class="box">
          <form action="../emergency/emergency.html">
            <button type="button" class="menu">
              <img src="./images/emergency.svg" alt="Emergency">
              <h3>Emergency</h3>
              <em>Emergency Contacts</em>
            </button>
          </form>
        </div>
      </div>
    </section>
    <section id="lower-bar">
      <div class="container">
        <nav>
```

```
<1i>
<font size="3" color="black" </font>
<a href="./info.html"><small><strong>Info</strong></small></a>
             <1i><a
href="http://puchd.ac.in"><small><strong>Main-Site</strong></small></a>
           </nav>
      </div>
    </section>
    <footer>
      StroGrammers LLC, Copyright <sup>&copy;</sup>
<sub>2017</sub><hr>
    </footer>
  </body>
</html>
```

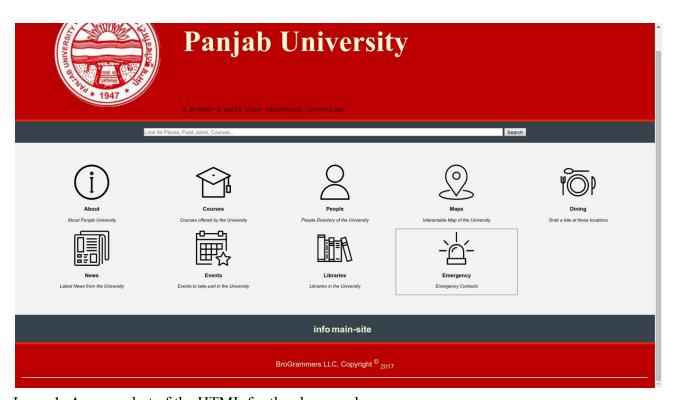


Image1: A screenshot of the HTML for the above code

AIM: Write html code to demonstrate the following w.r.t Panjab **University Web Application and Online Library:** <a> <href> Lists <0l> <dl> <dt> <dd>< Tables <colspan> < rowspan> Code: <!DOCTYPE html> <html lang="en"> <head> <title>Welcome to PU</title> <link rel="stylesheet" type="text/css" href="./my.css"> </head> <body> <header> PUNJAB
br>UNIVERSITY<hr height="20"> opens google </header> <div> Following are the departments in Punjab University :
 Physics Chemistry Maths

```
UIET
             UICET
             Russian
             French
             Geology
             And many others...
       Following are the hangout places at Punjab University : <br/><br/>br>
             <dl>Stu-C</dl><dd>An eating joint where you can sit, eat gossip and
repeat</dd>
             <dl>Rose Garden</dl><dd>An ambience worth experiencing with your
friends</dd>
             <dl>Physics Canteen</dl><dd>Best known for its Samosas across Punjab
University</dd>
             <dl>PU Ground</dl><dd>An open ground to jog, play and stroll</dd>
             <dl>PU Market</dl><dd>A place to buy all the stuff for your daily
needs</dd>
       <\!\! ol>
       Following is the list of Companies providing book support to our
university
       <style>
table {
      font-family: arial, sans-serif;
      border-collapse: collapse;
      width: 100%;
}
td, th {
      border: 1px solid #dddddd;
      text-align: left;
      padding: 8px;
}
tr:nth-child(even) {
      background-color: #dddddd;
</style>
</head>
<body>
<h2>HTML Table</h2>
Company
      Contact
```

```
Country
Alfreds Futterkiste
   Maria Anders
   Germany
Centro comercial Moctezuma
   Francisco Chang
   Mexico
Ernst Handel
   Roland Mendel
   Austria
>
   Island Trading
   Helen Bennett
   UK
Laughing Bacchus Winecellars
   Yoshi Tannamuri
   Canada
>
   Magazzini Alimentari Riuniti
   Giovanni Rovelli
   Italy
</div>
</body>
</html>
```

Practical 4

AIM:Write a program w.r.t to Panjab University Web Application and Online Library that implements

Forms <form> <input> <textarea> <button> <option> <label>

```
Code:
<!DOCTYPE html>
<html>
<body>
<h2>Book searching corner</h2>
<form action="/action_page.php">
 Book Name: <br >
 <input type="text" name="bookname" value="">
 <br/>br>
 Author name: <br>
 <input type="text" name="authorname" value="">
 <br>><br>>
 <input type="submit" value="Submit">
</form>
If you click the "Submit" button, the form-data will be sent to a page called
"/action page.php".
</body>
</html>
```

```
AIM: Use internal style sheets to demonstrate the following:
CSS Colors
CSS backgrounds
CSS margins
CSS margins
CSS padding
CSS height/width
css text
CSS fonts
CSS links
CSS lists

    CSS tables

Code:
<!DOCTYPE HTML>
<html lang="en">
<style>
* {
      margin: 0;
      padding: 0;
      box-sizing: border-box;
      text-rendering: optimizeLegibility;
div.container {
```

```
width: 100%;
}
header, footer {
       font-size: 30px;
  color: cyan;
  background-color: black;
  clear: left;
  text-align: center;
}
nav {
  float: left;
  width: 24%;
  height:100%;
  margin: 0;
  padding: 100px 50px;
  border: 1px solid gray;
}
article {
       float: right;
       padding:1em;
       width: 75%;
}
.tri{
       border-top: 1px solid gray;
       padding: 2px;
       float: left;
       width: 5%;
       height:8%;
       margin-left: 5%;
}
.topresults {
       border-top: 1px solid gray;
       width: 70%;
  padding-left: 2em;
  padding-top:3%;
  padding-bottom: 3%;
  margin-left: 10%;
  text-align: left;
}
</style>
```

```
<head>
    <title>Digital Library</title>
  </head>
  <body>
            <div class="container">
                   <header style="padding: 1em">Digital Library</header>
                   <nav>
                               <ul>
                               <a href="#">Books</a>
                               <a href="#">Research Papers</a>
                                      <a href="#">Cources</a>
                               </nav>
        <article align='center' >
            <form style="font-size:110%">
              <input style="font-size:110%" type="text" placeholder ="Look for</pre>
Books ">
              <button style="font-size:110%" type="search"</pre>
class="button 1">search</button>
            </form>
        </br>
        <a href="BookDetails/book1.html">
          <div class="container">
          <img class="tri" border="1px" src="a.jpg">
          Book 1 author and other details
          </div>
          </a>
         <a href="BookDetails/book1.html">
          <div class="container">
          <img class="tri" border="1px" src="a.jpg">
          Book 2 author and other details
          </div>
          </a>>
         <a href="BookDetails/book1.html">
          <div class="container">
```

```
<img class="tri" border="1px" src="a.jpg">
         Book 3 author and other details
         </div>
         </a>>
        <a href="BookDetails/book1.html">
         <div class="container">
         <img class="tri" border="1px" src="a.jpg">
         Book 4 author and other details
         </div>
         </a>
        <a href="BookDetails/book1.html">
         <div class="container">
         <img class="tri" border="1px" src="a.jpg">
         Book 5 author and other details
         </div>
         </a>>
        </article>
     </div>
 </body>
</html>
```

Practical 6

```
AIM:Use external style sheets to demonstrate following CSs outline
CSS display
CSS max width
CSS position
CSS Align
CSS inline block
CSS combinators
CSS pseudo class
Code:
HTML File:
<!DOCTYPE HTML>
<html lang="en">
<link href="main.css" rel="stylesheet" type="" >
  <head>
    <title>Digital Library</title>
  </head>
```

<div class="container">

<body>

```
<header style="padding: 1em">Digital Library</header>
                  <nav>
                               <ul>
                               <a href="#">Books</a>
                               <a href="#">Research Papers</a>
                                     <a href="#">Cources</a>
                               </nav>
        <article align='center' >
            <form style="font-size:110%">
              <input style="font-size:110%" type="text" placeholder ="Look for</pre>
Books ">
              <button style="font-size:110%" type="search"</pre>
class="button 1">search</button>
            </form>
        </br>
        >
          <a href="BookDetails/book1.html">
          <div class="container">
          <img class="tri" border="1px" src="a.jpg">
          Book 1 author and other details
          </div>
          </a>>
         <a href="BookDetails/book1.html">
          <div class="container">
          <img class="tri" border="1px" src="a.jpg">
          Book 2 author and other details
          </div>
          </a>
         <a href="BookDetails/book1.html">
          <div class="container">
          <img class="tri" border="1px" src="a.jpg">
          Book 3 author and other details
          </div>
          </a>
```

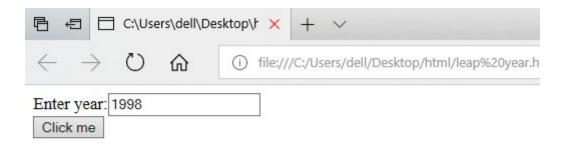
```
<a href="BookDetails/book1.html">
          <div class="container">
          <img class="tri" border="1px" src="a.jpg">
          Book 4 author and other details
          </div>
          </a>>
         <a href="BookDetails/book1.html">
          <div class="container">
          <img class="tri" border="1px" src="a.jpg">
          Book 5 author and other details
          </div>
          </a>
         </article>
      </div>
  </body>
</html>
CSS File:
* {
      margin: 0;
      padding: 0;
      box-sizing: border-box;
      text-rendering: optimizeLegibility;
}
div.container {
  width: 100%;
  position: relative;
}
header, footer {
      font-size: 30px;
  color: cyan;
  background-color: black;
  clear: left;
  text-align: center;
```

```
nav {
  float: left;
  width: 24%;
  max-width: 300px;
  height:100%;
  margin: 0;
  padding: 100px 50px;
  border: 1px solid gray;
a:hover {
  color: green;
article {
       float: right;
       padding:1em;
       width: 75%;
div > img\{
 display: inline-block;
       border-top: 1px solid gray;
       padding: 2px;
       float: left;
       width: 5%;
       height:8%;
       margin-left: 5%;
div > p {
       border-top: 1px solid gray;
       width: 70%;
  padding-left: 2em;
  padding-top:3%;
  padding-bottom: 3%;
  margin-left: 10%;
  text-align: left;
}
```

AIM:WAP to enter a year and check if it is a leap year or not html>

```
<br/>
<br/>
Enter year:<input id="year"><br/>
<button onclick="verify()">Click me</button></body>
</html>
```

Input:



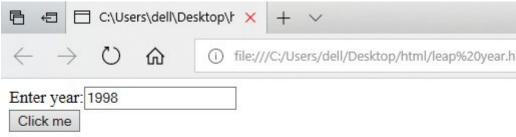
Output:



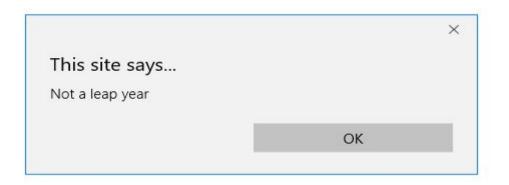
AIM:WAP to enter a year and see if it is a leap century or not()

```
<html>
<head>
  <script>
    function verify() {
      var no;
      no = Number(document.getElementById("year").value);
      if (no \% 4 == 0 \&\& no \% 100 == 0) {
         alert("leap year ");
       } else {
         alert("Not a leap year");
 </script>
</head>
<body>
 Enter year:<input id="year"><br/>
 <button onclick="verify()">Click me</button>
</body>
</html>
```

Input:



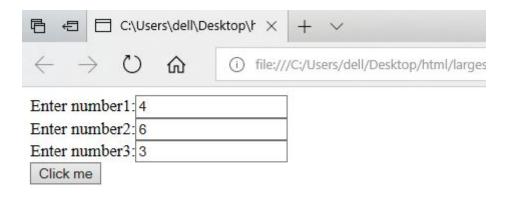
Output:



AIM:WAP to print the largest of the three numbers

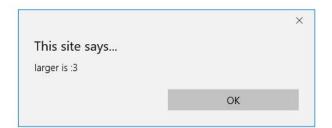
```
<html>
<head>
 <script>
    function verify() {
      var no1;
      no1 = Number(document.getElementById("num1").value);
      var no2;
      no2 = Number(document.getElementById("num2").value);
      var no3;
      no3 = Number(document.getElementById("num3").value);
      if (no1 >> no2 \&\& no1 >> no3) {
        alert("larger is :" + no1);
      else if (no2 >> no1 && no2 >> no3) {
        alert("larger is :" + no2);
      } else {
        alert("larger is :" + no3)
 </script>
</head>
<body>
 Enter number1:<input id="num1"><br /> Enter number2:<input id="num2"><br />
Enter number3:<input id="num3"><br/>>
 <button onclick="verify()">Click me</button>
</body>
</html>
```

Input:



Output:





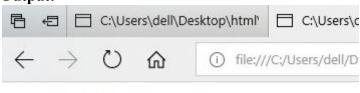
AIM:WAP to print the following series:

```
<html>
<head>
  <script lang="javascript">
    function series() {
      var number;
      number = Number(document.getElementById("num1").value);
      var i = 1;
      document.write(i);
      while (i < (number - 1)) {
         i = i + 1;
         document.write(" - " + i);
         i = i + 1;
         document.write(" + " + i);
 </script>
</head>
<body>
 Enter number of terms to be printed:<input id="num1"><br/>br />
 <button onclick="series()">Click me to print series</button>
</body>
</html>
```

Input:



Output:



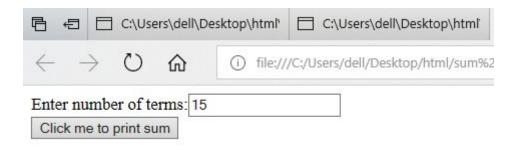
1-2+3-4+5-6+7-8+9

AIM:WAP to print sum of odd numbers

```
<html>
<head>
  <script lang="javascript">
    function series() {
      var number;
      number = Number(document.getElementById("num1").value);\\
      var i = 1;
      var sum = 0;
      do {
        sum = sum + i;
        i = i + 2;
      \} while (i < (number - 1))
      alert("sum is: " + sum);
  </script>
</head>
<body>
 Enter number of terms:<input id="num1"><br/>br/>
 <button onclick="series()">Click me to print sum
</body>
```

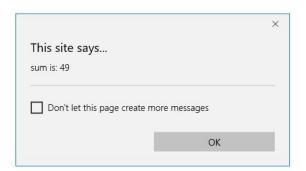
</html>

Input:



Output:





AIM:WAP to use break and continue

Break

```
Break is for breaking the control of the loop at pre mature stage for (i =1; i <=5; i++) {document. write ("hello"); If (i==2) {break; } } for (i=2; i <=n-1; i++) {if (n%i ==0) {document. write ("not prime"); break; } else {document. write ("prime"); } } else {document. write ("prime"); } }
```

Continue

Continue will continue the control and sends the control immediately upside for next increment and skips the lower statements.

```
for (i=1; i<=5; i++)
document.write (" hello);
if(i==2)
{continue;}
document.write("bye");
Break
<html>
<head>
 <script>
    function verify() {
      var n;
      n = Number(document.getElementById("year").value);
      for (i = 2; i \le n - 1; i++)
         if (n \% i == 0) {
           document.write("not prime");
           break;
         } else {
           document.write("prime");
           break;
  </script>
</head>
<body>
 Enter number:<input id="year"><br/>
 <button onclick="verify()">Click me</button>
</body>
</html>
<html>
Continue
<head>
  <script>
    function verify() {
        for (i=1; i \le 5; i++)
              document.write ("hello);
              if(i==2)
               {continue;}
              document.write("bye");
```

Practical 13

AIM:WAP to find sum of two numbers using functions

```
<!DOCTYPE html>
<html>
<body>

Number 1: <input type="number" id="myNumber1" value=" "> Number 2: <input type="number" id="myNumber2" value=" ">

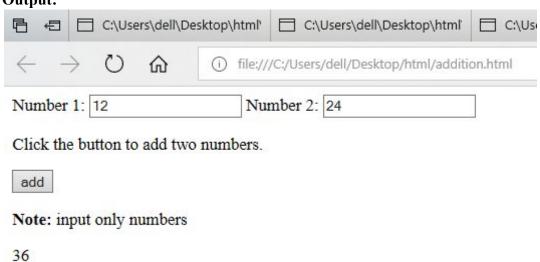
Click the button to add two numbers.
<br/>
<br/>
<br/>
<br/>
cbutton onclick="myFunction()">add</button>
<strong>Note:</strong> input only numbers
```

```
    function myFunction() {
        var x = Number(document.getElementById("myNumber1").value);
        var y = Number(document.getElementById("myNumber2").value);
        var z = addition(x, y);
        document.getElementById("answer").innerHTML = z;
    }

    function addition(a, b) {
        return a + b;
    }
    </script>

</body>
</html>
```

Output:

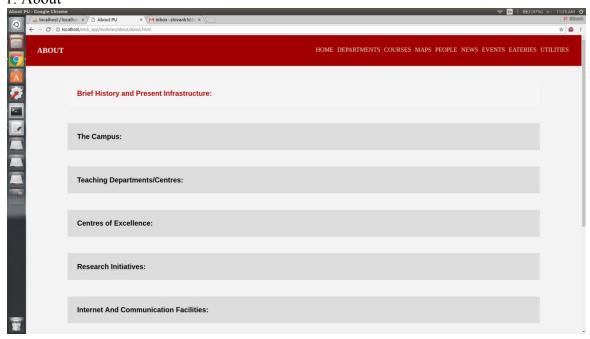


SCREENSHOTS OF OUR PROJECT

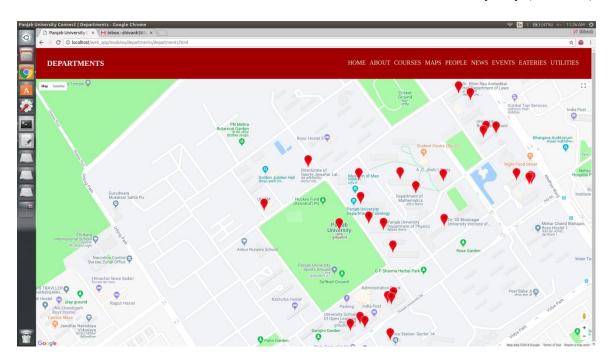
Homepage

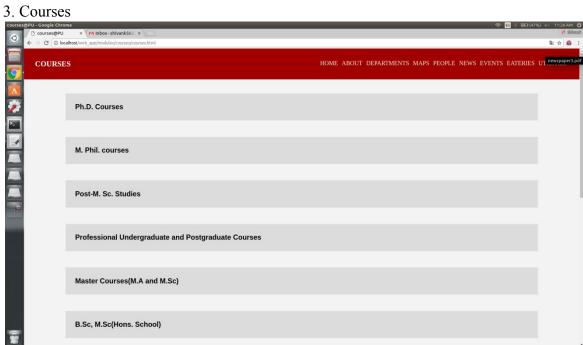


1. About

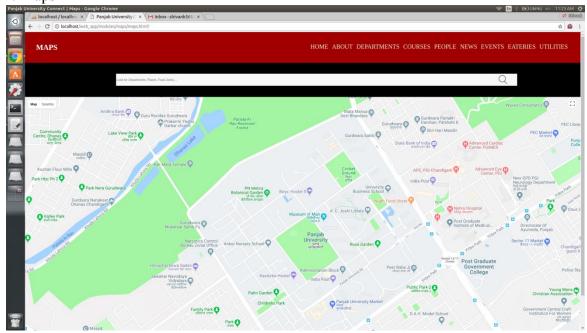


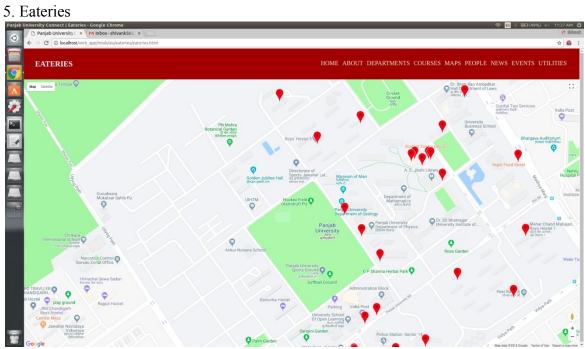
2. Departments



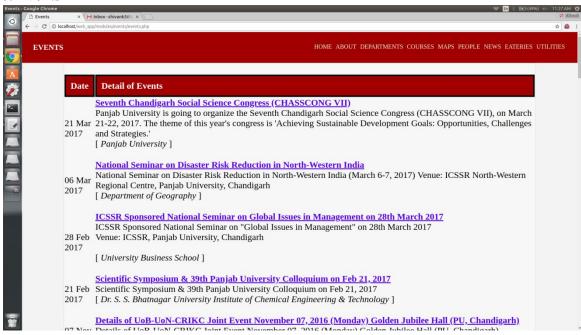


4. Maps

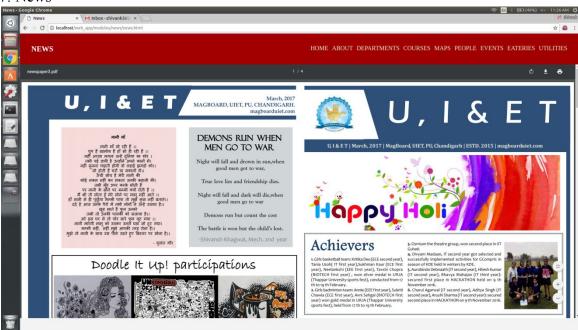




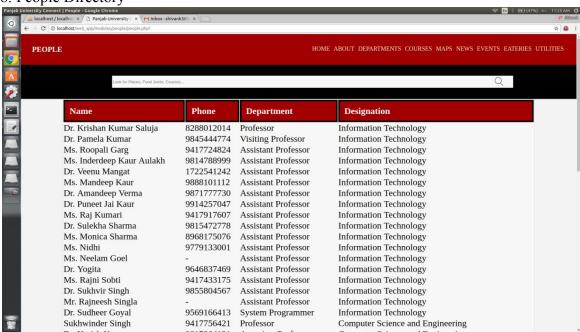
6. Events



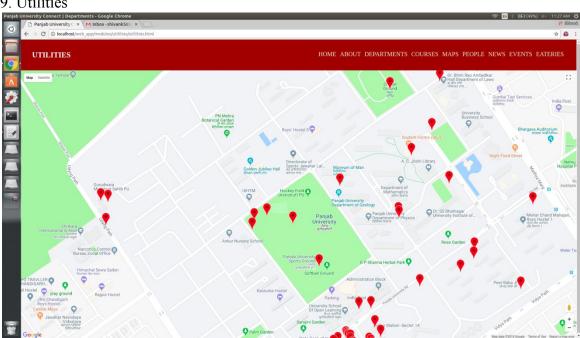
7. News



8. People Directory



9. Utilities



10. Library

