Program 1

A **computer program** is a collection of instructions that can be executed by a computer to perform a specific task.

A collection of computer programs, libraries, and related data are referred to as software.

Computer programming is the process of designing and building an executable computer program to accomplish a specific computing result or to perform a specific task. Programming involves tasks such as: analysis, generating algorithms, and the implementation of algorithms in a chosen programming language.

Algorithm

An algorithm is a set of procedure or instruction for solving well defined computational problems

Practical exercise 1

Write an algorithm for the following

- Add/subtract two numbers
- Find the largest/smallest of 3 numbers
- Calculate and print sum of 'N' numbers

Addition of two numbers

Step 1: Start

Step 2: Declare variables num1, num2 and sum.

Step 3: Read values for num1 and num2.

Step 4: Add num1 and num2 and assign the result to sum.

Sum=num1+num2

Step 5: Display sum

Step 6: Stop

Subtraction of two numbers

Step 1: Start

Step 2: Declare variables num1, num2 and sum.

Step 3: Read values for num1 and num2.

Step 4: subtract num1 and num2 and assign the result to sub.

sub=num1-num2

Step 5: Display sub.

Step 6: Stop

b) **Find the** Largest among 3 numbers

Step 1: start

Step 2: Input A, B, C

Step 3: if A>B

Then if A>C

Largest num is A

Else

Largest num is C

End if

Else

B>C

Then largest num is B

Else

Largest num is C

End if

End if

Step 4: print larger num

Step 5: stop

Find the Smallest among 3 numbers

Step 1: start

Step 2: Input A, B, C

Step 3: if A<B

Then if A<C

Smaller num is A

Else

Smaller num is C

End if

Else

B<C

Then smaller num is B

Else

Smaller num is C

End if

End if

Step 4: print smaller num

Step 5: stop

c) Calculate and print sum of 'N' numbers

Step 1: start

Step 2: assign sum=0,i=0

Step 3: read limit of number n

Step 4: repeat step 5 and step 6 until i=n

Step 5: compute sum=sum+i

Step 6: compute i=i+1

Step 7 print sum

Step 8: end

Flow Chart

A flow chart is a type of diagram representing a process using different symbols.

Symbols contain information about steps or a sequence of events.

Each of these symbols is linked with arrows to illustrate the flow direction of the process.

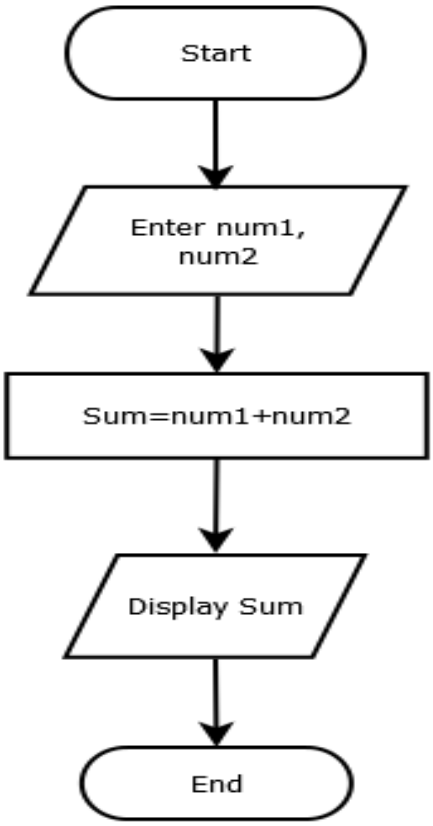
Symbol	Name	Function
	Start/end	An oval represents a start or end point
	Arrows	A line is a connector that shows relationships between the representative shapes
	Input/Output	A parallelogram represents input or output
	Process	A rectangle represents a process
	Decision	A diamond indicates a decision

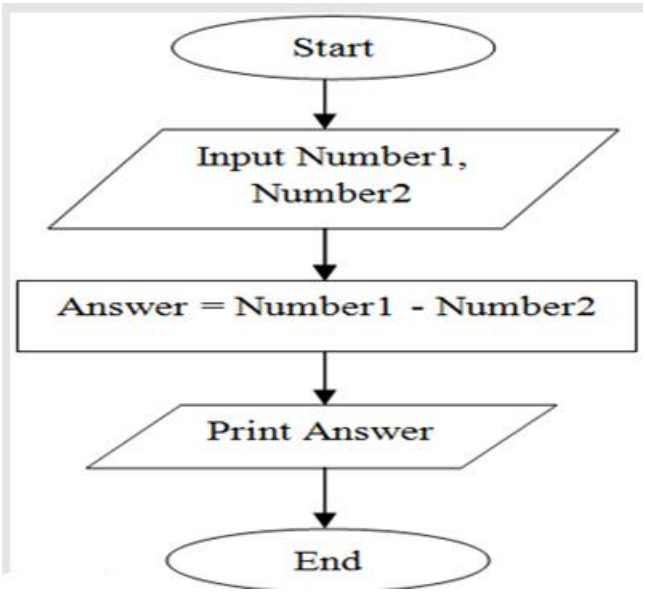
Practical exercise 2

Design a flowchart for the following

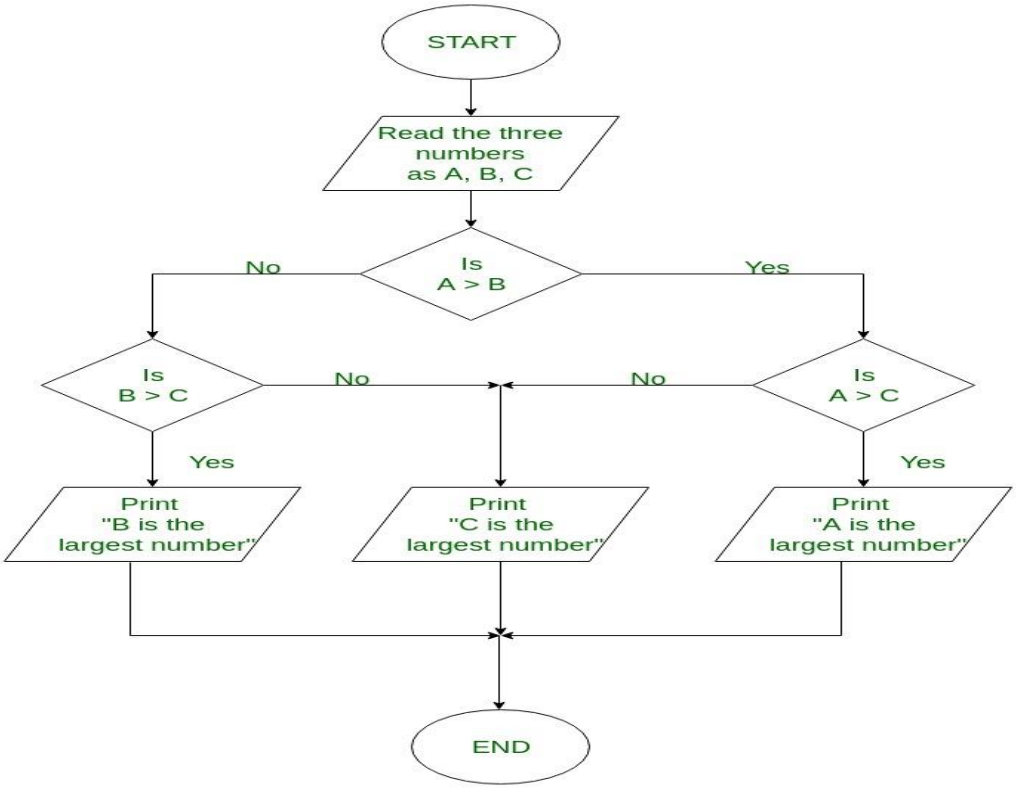
- Add/subtract two numbers
- Find the largest/smallest of 3 numbers
- Calculate and print sum of 'N' numbers

a) Addition of two numbers

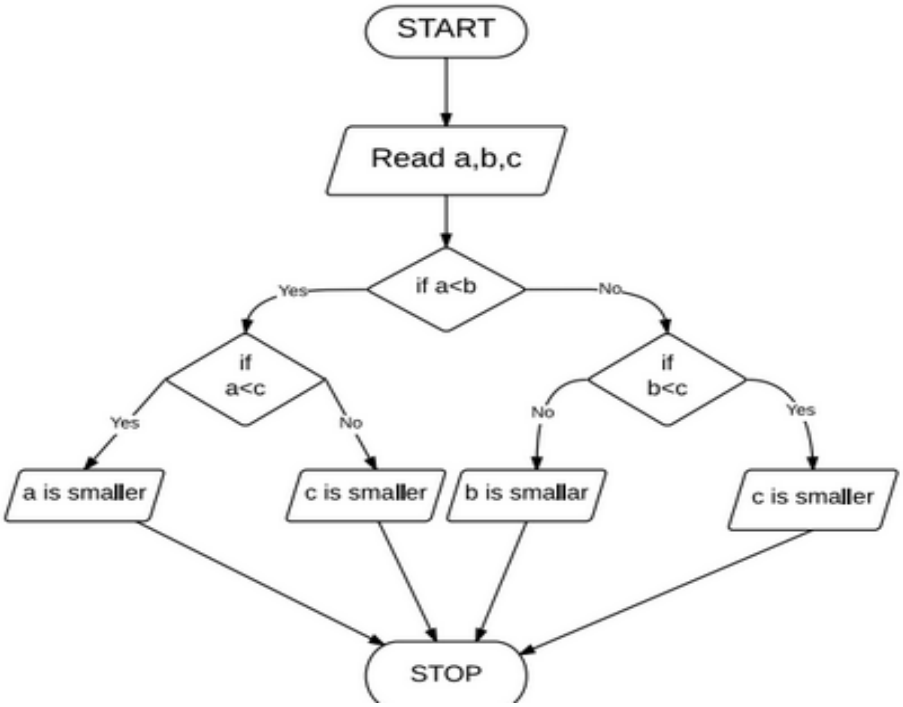




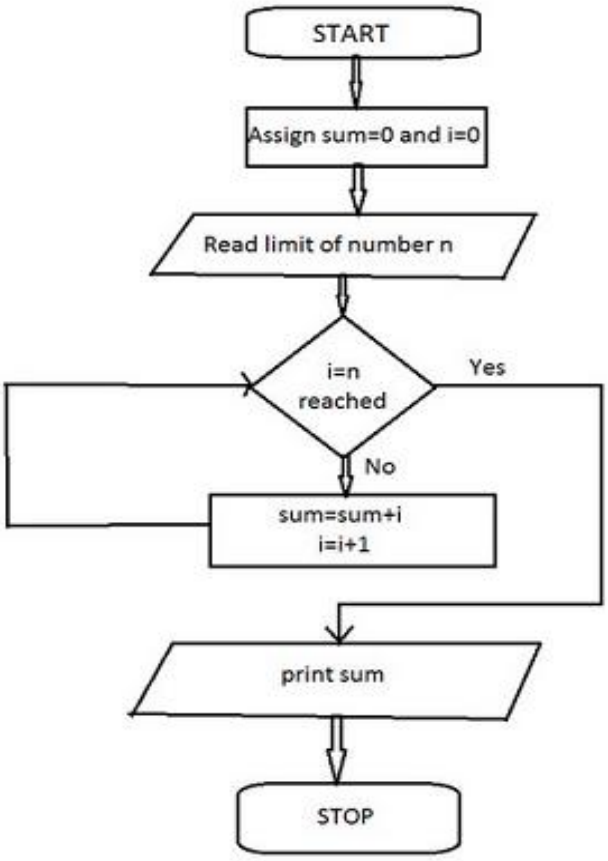
b) Find the largest of 3 numbers



b) Find the smallest of 3 numbers



c) Calculate and print sum of 'N' numbers


START
Assign sum=0 and i=0
Read limit of number n
i=n
reached
Yes
No
sum=sum+i
i=i+1
print sum
STOP

Program 3

Design and create a simple game using MIT-scratch

Sprite – Pictures available in scratch

Blocks – we can give commands to sprits and those commands are called as blocks

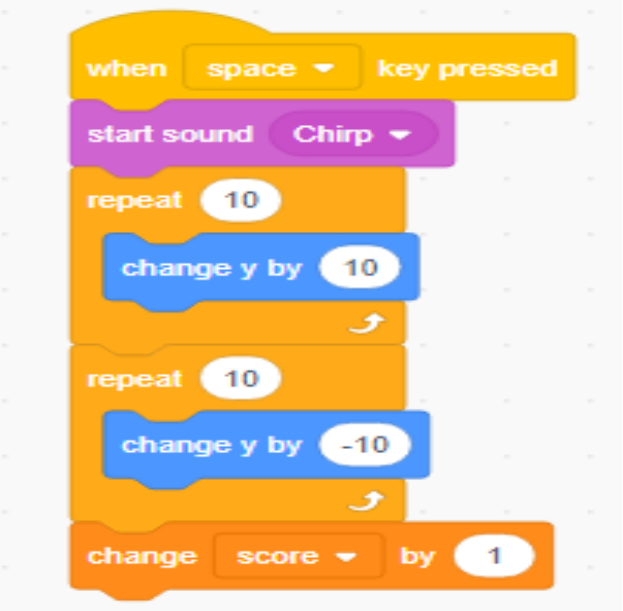
Program or script – in the middle of the screen is a blank area. You can put together blocks here to make more complicated commands. This is called a script.

Steps to create a Game

1. Make your Character Jump.

Select a Character from choose a spirit (Bottom Right Corner)

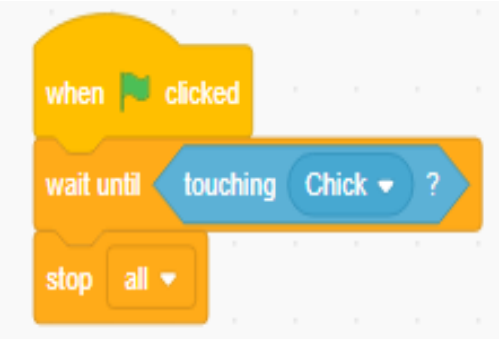
Choose a backdrop. (Bottom Right Corner)



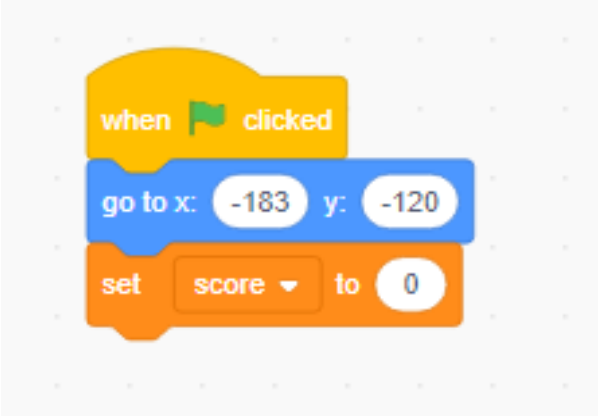
2. Make moving Obstacles.

Select a Obstacles from choose a spirit. (Bottom Right Corner)

3. Stop the Game.



4. Keep Score.



Steps to develop a game to catch a falling object

Go to Google→ mit-scratch→start creating

1. Move the catcher
2. Object should be at the top
3. Falling down a selected object
4. Catch it
5. Keep score

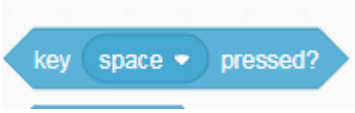
To select and move the catcher

Choose a sprite (bowl) and backdrop.

In the code section select the following codes to move the bowl

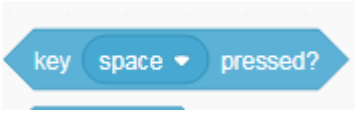
a) Events → 

and control→ sselect forever block

b) Control→if block , sensing→ select 

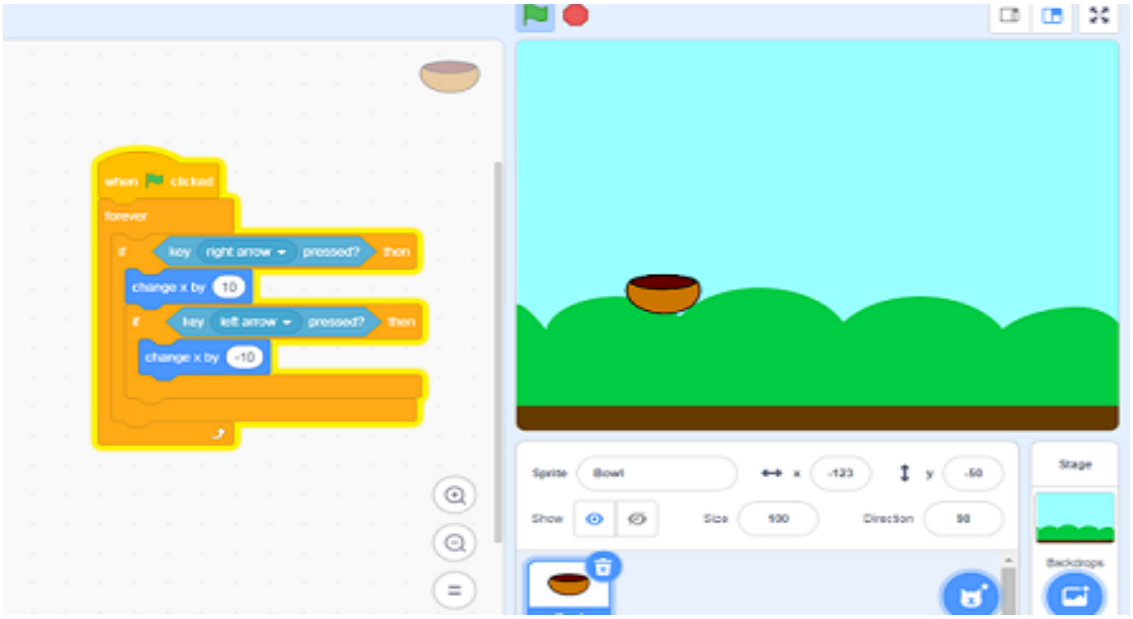
and select right arrow in the place of space

c) Motions→change x by 10

d) Control→if block , sensing→ select 

and select left arrow in the place of space

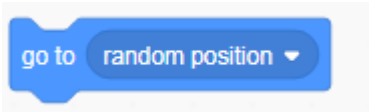
e) Motions→change x by -10



To select and move an object

Choose a sprite (apple) and to place the apple randomly at the top

a) Events → 

b) Motions→ 

c) Motions→set y to 180

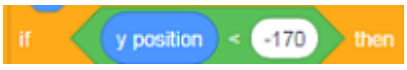
To make an object (apple) falling down

a) Control→forever block

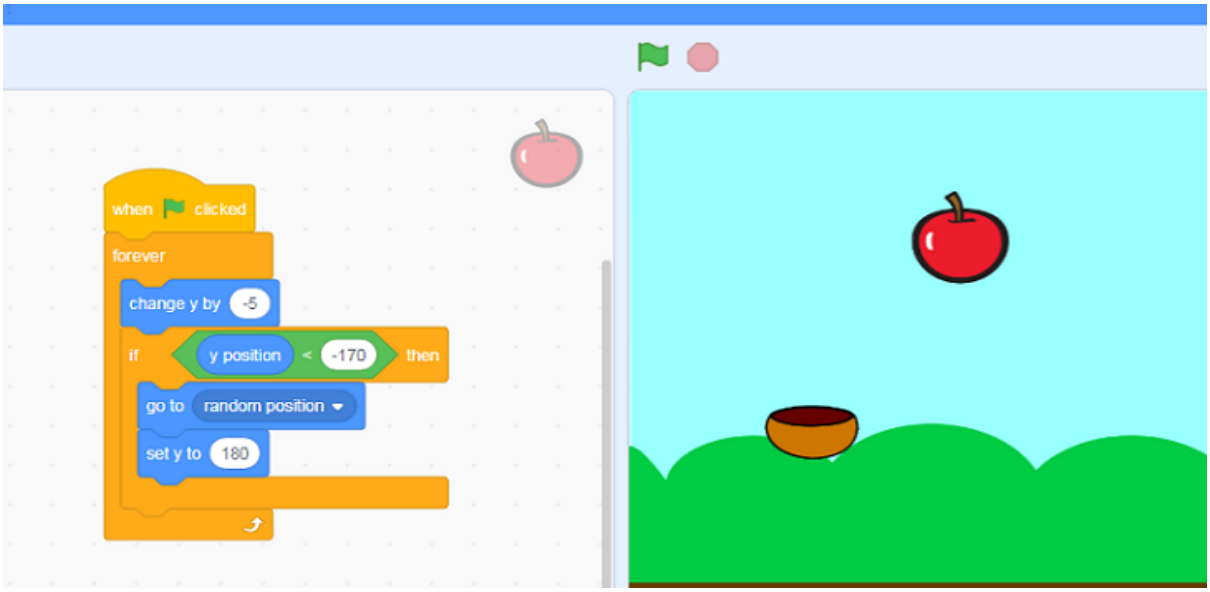
b) Motion→change y by -5

c) Control→select if block, then 

then motion→ y position and set -170



d) Motion→select go to random position and set y to 180



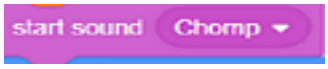
To catch an object (apple)

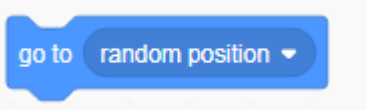
a) Events → 

b) Variable→ give variable name as score set variable(score) to 0(zero)

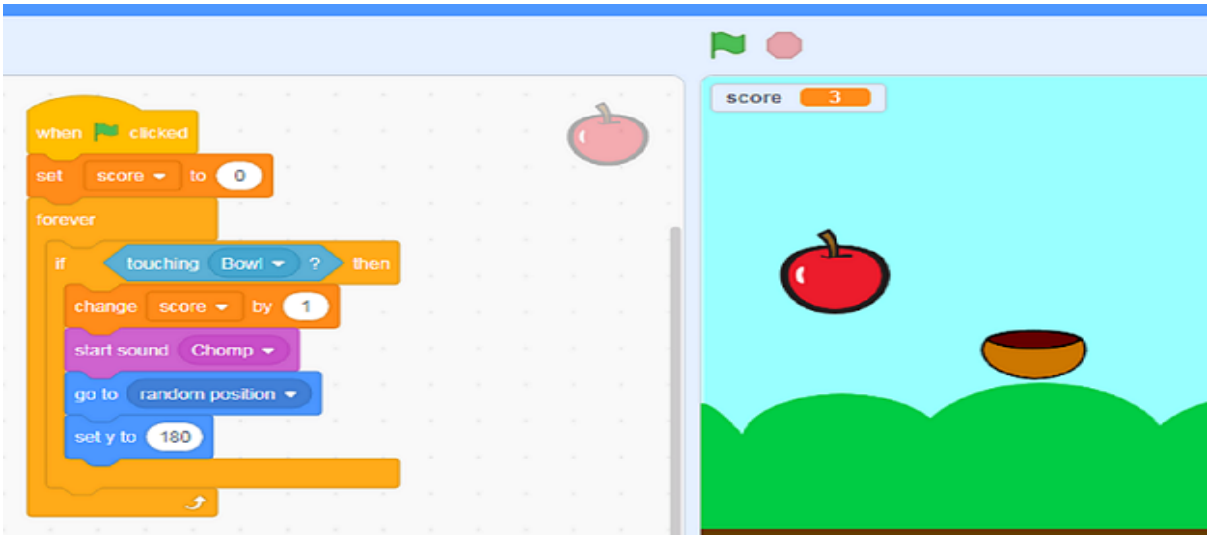
c) Control→forever loop ,if loop then select 

d) Variable→change score by 1

e) Sound→ 

f) Motions→ 

g) Motions→set y to 180



Program 4

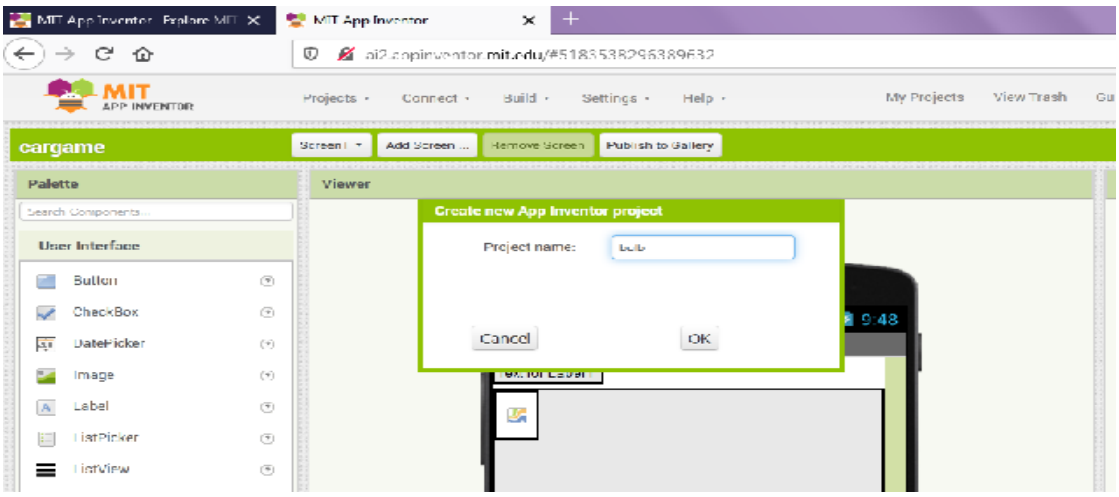
Design and create simple android application (MIT-app inventor)

Creating Light ON and OFF app using button and image.

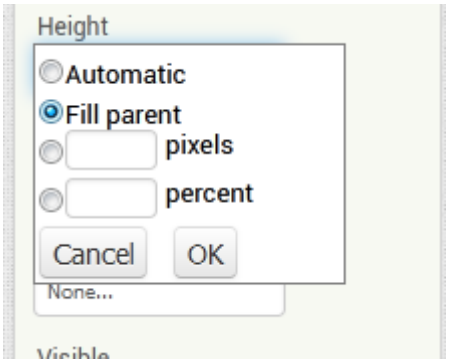
Install MIT AI2 companion to our smart phones then follow the steps

Step 1: login to https://appinventor.mit.edu/ using your Gmail account

Step 2: project→ start new project→give name to your project



Step 3: layout→vertical arrangement, go to properties and change height & width to "fill parent" then click ok. Change background color to blue.



Step 4: user interface→image then go to components and vertical arrangement→left→center

User interface→ image1 and in properties select fill parent and set height =30% and width =20%

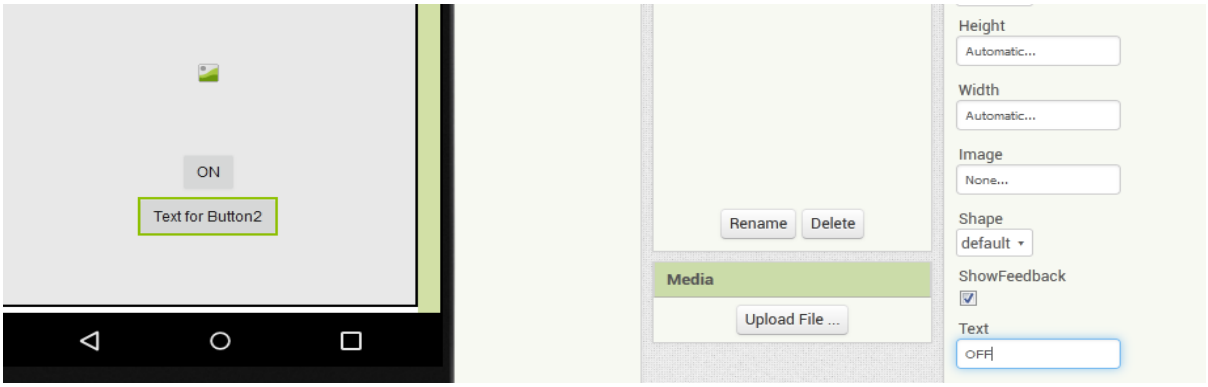
User interface→ image2 and in properties select fill parent and set height =30% and width =20%

Step 5: drag and drop two buttons for ON and OFF

Select “button1” and change text for button1 to ON

Select “button2” and change text for button1 to OFF

Rename button1 & 2 to ON and OFF

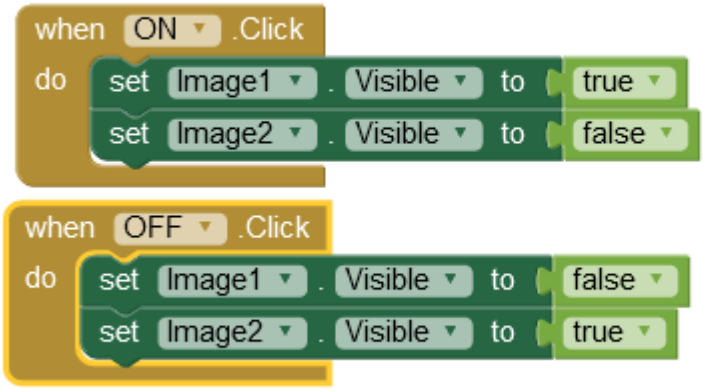


Step 6: upload images to image1 and image2

Download 2 images (which is on & off) of bulb then click on image1 and go to picture→upload image where the bulb is ON and uncheck the visible option

Click on image2 and go to picture→upload image where the bulb is OFF

Step 7: go to block and write the code for button 1 & 2 by dragging “when on click” and “when off click” and also select “set image 1&2visible to true and/or false”



Step 8: connect→AI companion then QR code will be generated then scan that QRR code by your smart phones using MIT AI 2companion app. Then we can run the Light ON and OFF app

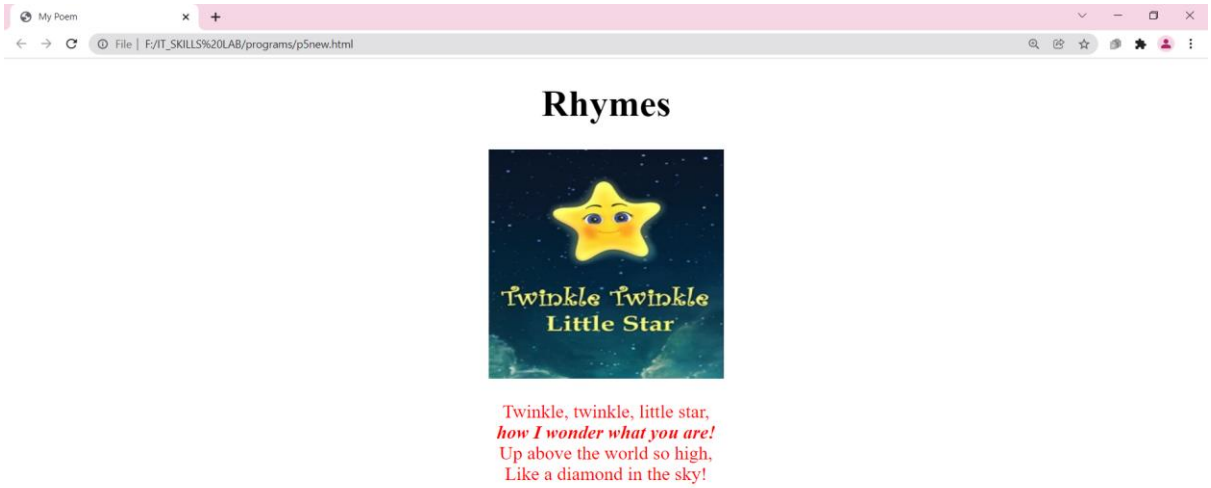

Display hidden components in Viewer
Phone size (505,320)
Screen1
Barcode link for bulb
http://ai2.appinventor.mit.edu/b/i6na
OK
Note: this barcode is only valid for 2
hours. See the FAQ for info on how

Program 5:

Design and create webpage for displaying your poem (Title, header, paragraph, formatting tags)

```
<!DOCTYPE html>
<html>
<head>
<title>My Poem </title>
</head>
<body><center>
<h1>Rhymes</h1>
<img src="twinkle1.jpg" width="200" height="200"/>
<p style="color:red;">
        Twinkle, twinkle, little star, <br>
<b><i> how I wonder what you are!</b></i><br>
    Up above the world so high, <br>
    Like a diamond in the sky!
</p>
</center>
</body>
</html>
```

Output



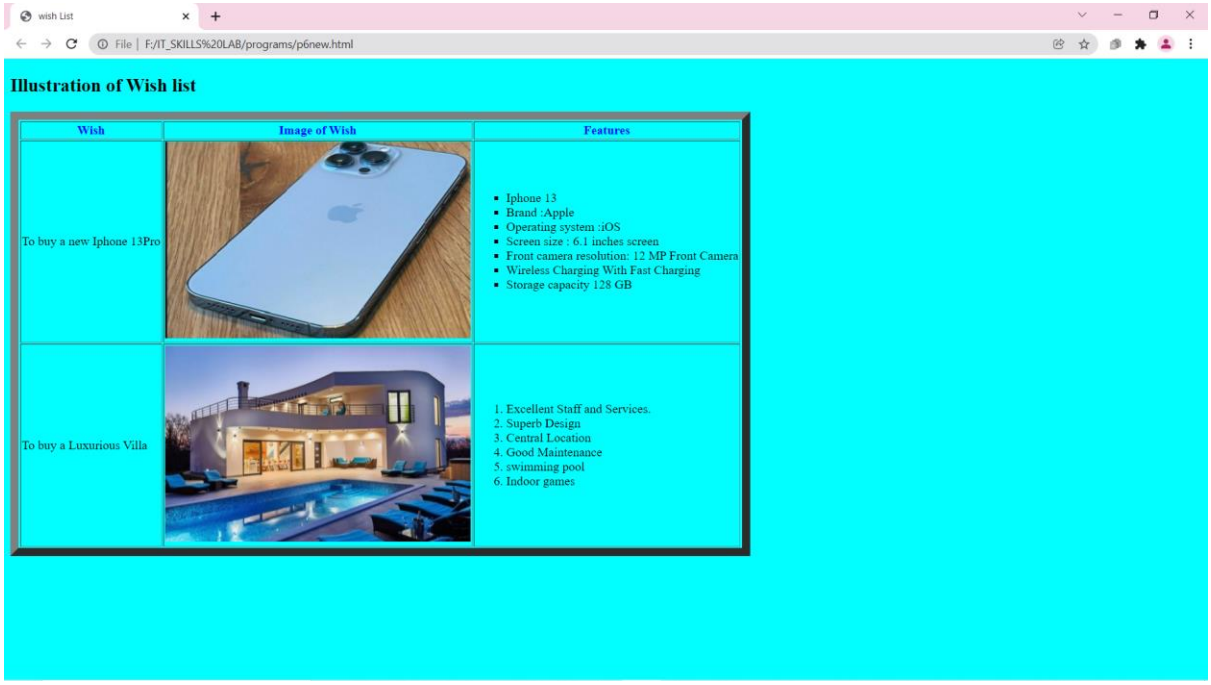
Program6

Design and create webpage for your wish list[What you want to do]. Also list challenges and opportunities along with images to present your dreams [List ordered and un-ordered ,image ,table].

```
<!DOCTYPE HTML>
<head> <title> wish List</title></head>
<body bgcolor="cyan">
<h2> Illustration of Wish list </h2>
<table border="11">
<tr style= "color:blue">
<th>  Wish </th>
        <th> Image of Wish </th>
        <th> Features </th>
</tr>
<tr>
        <td> To buy a new Iphone 13Pro </td>
        <td><img src="iphone.jpg" width="390" height="250"></IMG></td>
        <td>
          <ul type="square">
                <li>Iphone 13 </li>
                <li>Brand :Apple</li>
                <li>Operating system :iOS</li>
                <li>Screen size : 6.1 inches screen</li>
                <li> Front camera resolution: 12 MP Front Camera</li>
                <li>Wireless Charging With Fast Charging </li>
                <li>Storage capacity 128 GB</li>
          </ul>
          </td>
</tr>
<tr>
        <td> To buy a Luxurious Villa </td>
        <td><img src="villa.jpg" width="390" height="250"></td>
        <td>
        <ol type=1>
```

```
                <li>Excellent Staff and Services.</li>
                <li>Superb Design</li>
                <li>Central Location</li>
                <li>Good Maintenance</li>
                <li>swimming pool</li>
                <li>Indoor games</li>
        <ol>
        </td>
</tr>
</table>
</body>
</html>
```

Output



Program7:

Design and create webpage using HTML and CSS about an awesome animal (Use necessary CSS tags)

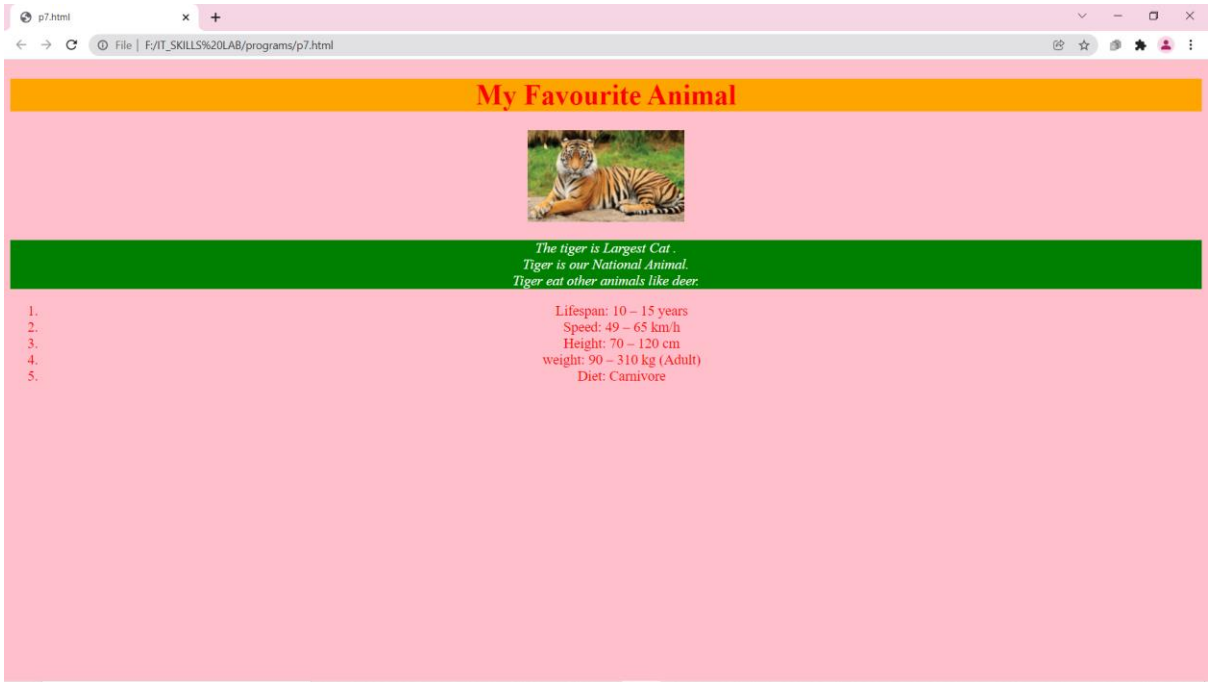
```
<!DOCTYPE html>
<style>
p
{
font-style:italic;
color:white;
background-color:green;
text-align:center;
}
h1
{
background-color:orange ;
}
body
{
background-color:pink;
font-face: "Arial";
font-size:18px;
 color:red;
}
</style>
<body>
<center>
<h1>My Favourite Animal</h1>
<img src="tiger.jpg" width="200" height=”200”>
<p> The tiger is Largest Cat .<br>
Tiger is our National Animal.<br>
Tiger eat other animals like deer.  </p>
<ol type="1">
<li>Lifespan: 10 – 15 years </li>
<li>Speed: 49 – 65 km/h</li>
<li>Height: 70 – 120 cm </li>
<li>weight: 90 – 310 kg (Adult)</li>
```

Diet: Carnivore

</body>

</html>

Output



Program 8:

Design and create web page for a travel book/recipe book with more than 3 pages, table to list places/recipes (iframe, hyperlink).

P8.html

```
<!DOCTYPE html>
<head>
<title>Heritage Places</title>
</head>
<body>
<center>
<font size="20" color="red">
<i> Illustration of Heritage places in Mysuru </font><br><br><br>
<iframe src="p81.html" width="300" height="300" name="iframe1" border=4> Home
</iframe></center>
</body>
<table border="4" align="center">
<tr>
  <td><b> List of places </b><br><br>
     <a href="p82.html" target="iframe1">Click here to view Chamundi Hill</a><br><br>
      <a href="p83.html" target="iframe1">Click here to View GRS Amusement Park</a><br><br>
      <a href="p84.html" target="iframe1">Click here to View Brindavan Garden</a><br><br>
       <a href="p85.html" target="iframe1">Click here to View Mysuru Zoo</a><br><br>
   </td>
<tr>
</table>
</center>
</body>
</html>
```

P81.html

```
<html>
<body>
        <img src="palace.jpg" height=300 width="300">
</body>
</html>
```

P82.html

```
<html>
<body>
        <img src="Chamundi.jpg" height=300 width="300">
</body>
</html>
```

P83.html

```
<html>
<body>
        <img src="grs.jpg" height=300 width="300">
</body>
</html>
```

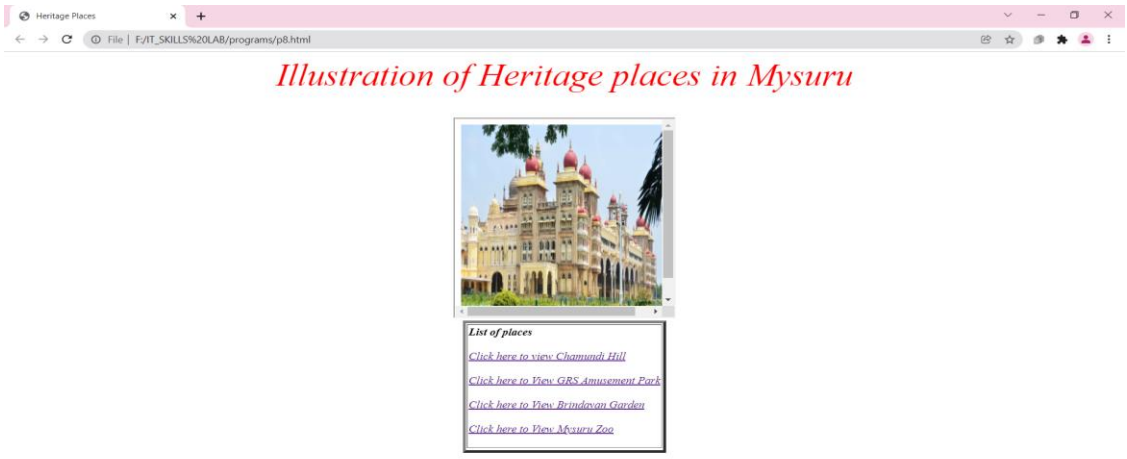
P84.html

```
<html>
<body>
        <img src="krs.jpg" height=300 width="300">
</body> </html>
```

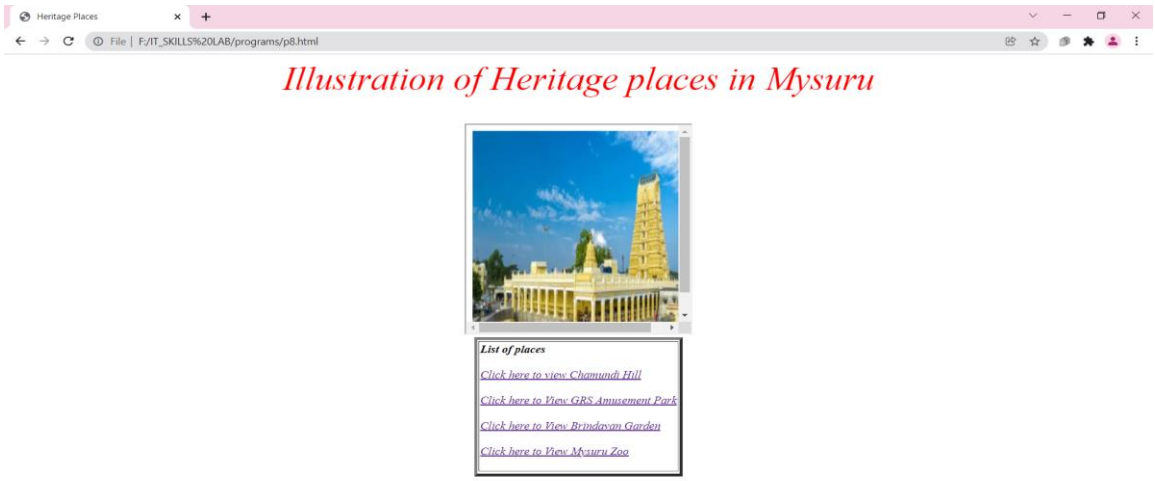
P85.html

```
<html>
<body>
        <img src="zoo.jpg" height=300 width="300">
</body> </html>
```

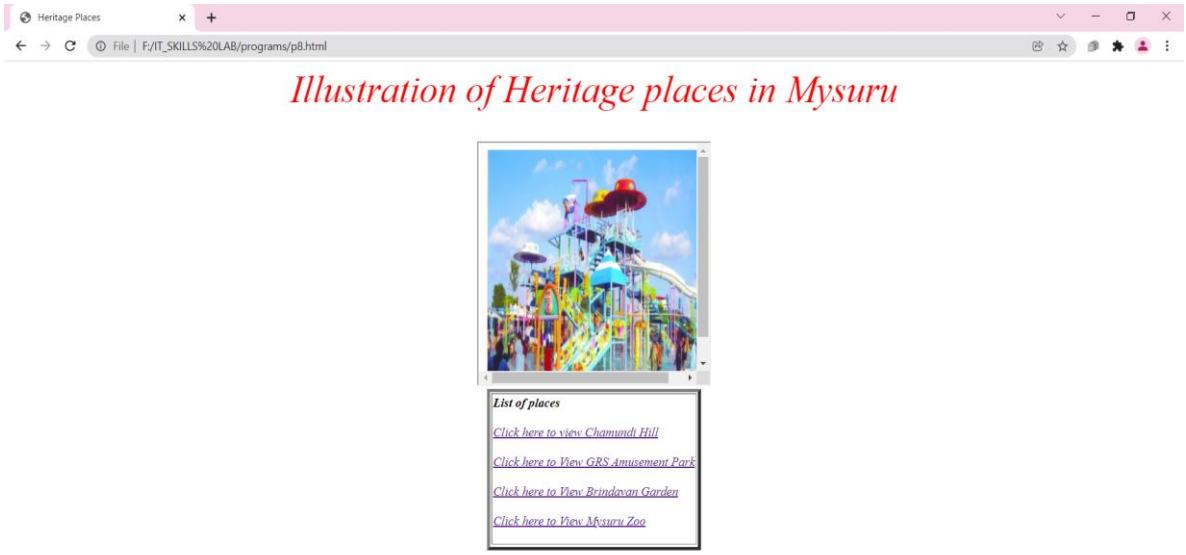
Output



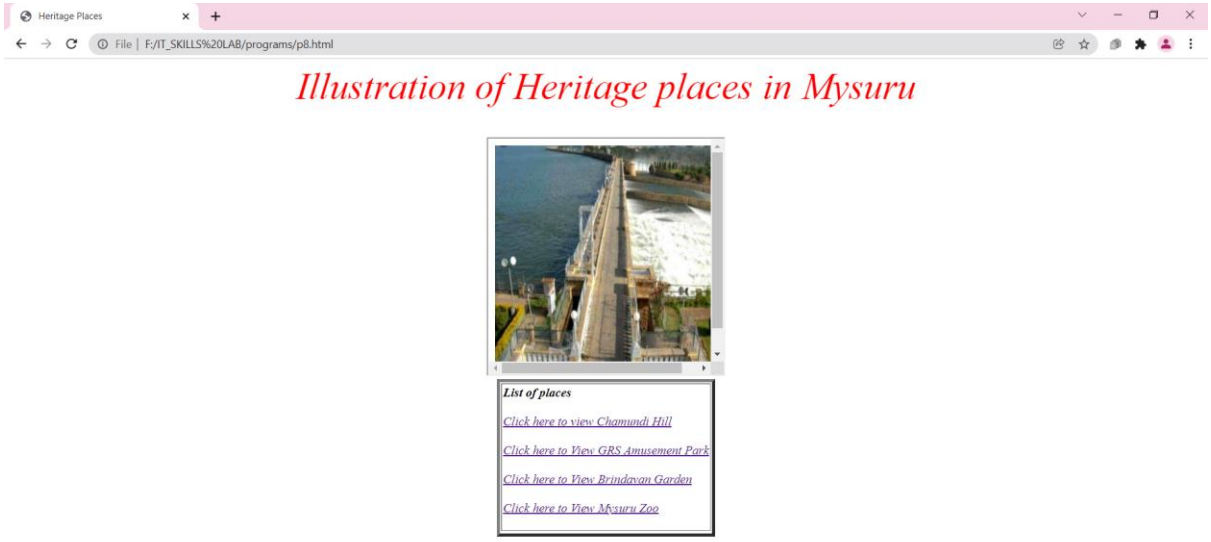
Click here to view Chamundi Hill



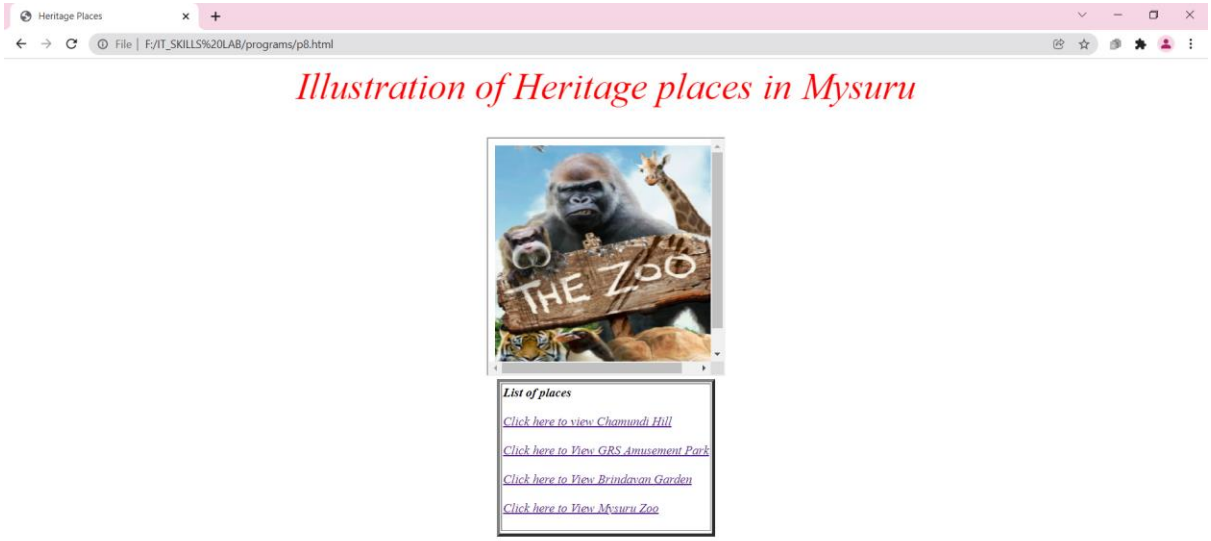
Click here to View GRS Amusement Park



Click here to View Brindavan Garden



Click here to View Mysuru Zoo



Program9:

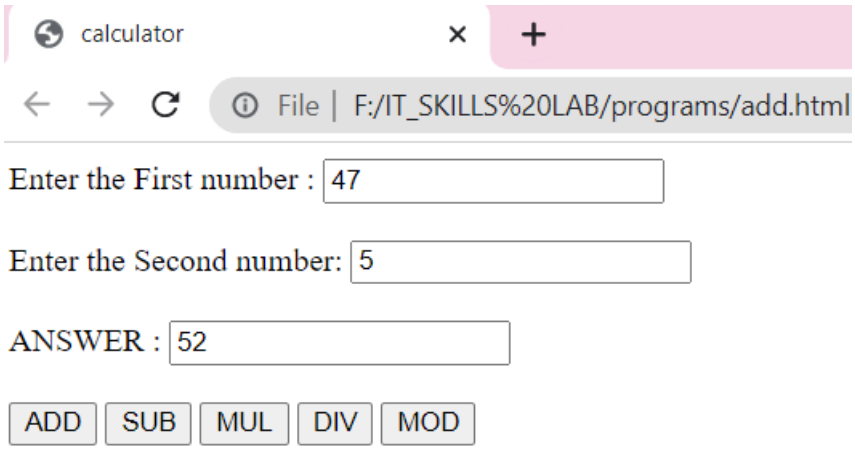
Design and create web page with JavaScript to design a simple calculator to perform the following operations: sum, product, difference and quotient.

```
<!doctype html>
<head> <title> calculator</title>
<script type="text/javascript">
function add()
{
	var a,b,c;
	var dom=document.getElementById("myform");
	a=parseFloat(dom.t1.value);
	b=parseFloat(dom.t2.value);
	c= a + b;
	dom.t3.value=c;
}
function sub()
{
	var a,b,c;
	var dom=document.getElementById("myform");
	a=parseFloat(dom.t1.value);
	b=parseFloat(dom.t2.value);
	c= a - b;
	dom.t3.value=c;
}
function mul()
{
	var a,b,c;
	var dom=document.getElementById("myform");
	a=parseFloat(dom.t1.value);
	b=parseFloat(dom.t2.value);
	c= a * b;
	dom.t3.value=c;
}
function div()
{
	var a,b,c;
	var dom=document.getElementById("myform");
	a=parseFloat(dom.t1.value);
	b=parseFloat(dom.t2.value);
	c= a / b;
	dom.t3.value=c;
}
function mod()
{
	var a,b,c;
	var dom=document.getElementById("myform");
	a=parseFloat(dom.t1.value);
	b=parseFloat(dom.t2.value);
	c= a % b;
	dom.t3.value=c;
```

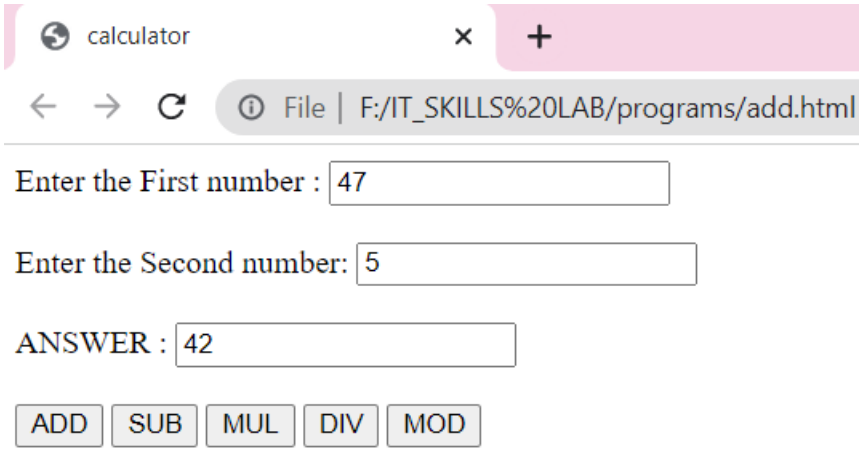
```
}
</script>
</head>
<body >
<form id="myform">
        Enter the First number : <input type="text" name="t1"/><br><br>
        Enter the Second number: <input   type="text" name="t2"/><br><br>
        ANSWER : <input type="text" name="t3"><br><br>
        <input type="button" onclick="add()" value="ADD"/>
        <input type="button" onclick="sub()" value="SUB"/>
        <input type="button" onclick="mul()" value="MUL"/>
        <input type="button" onclick="div()" value="DIV"/>
        <input type="button" onclick="mod()" value="MOD"/>
</form>
</body>
</html>
```

Output

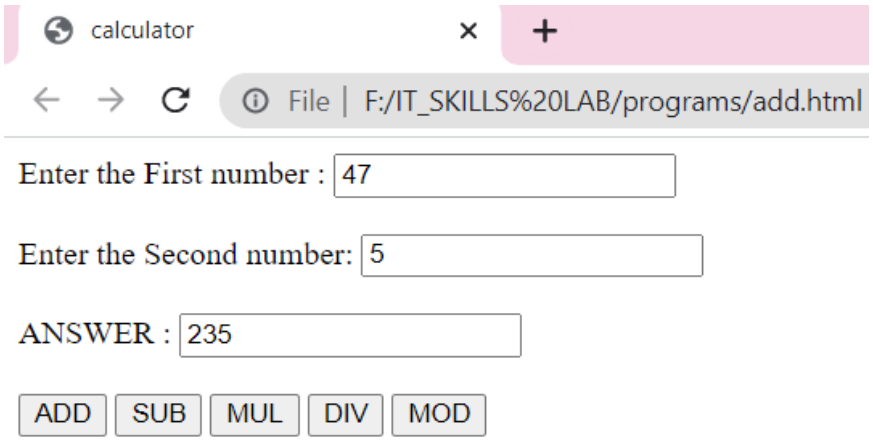
ADD button is clicked



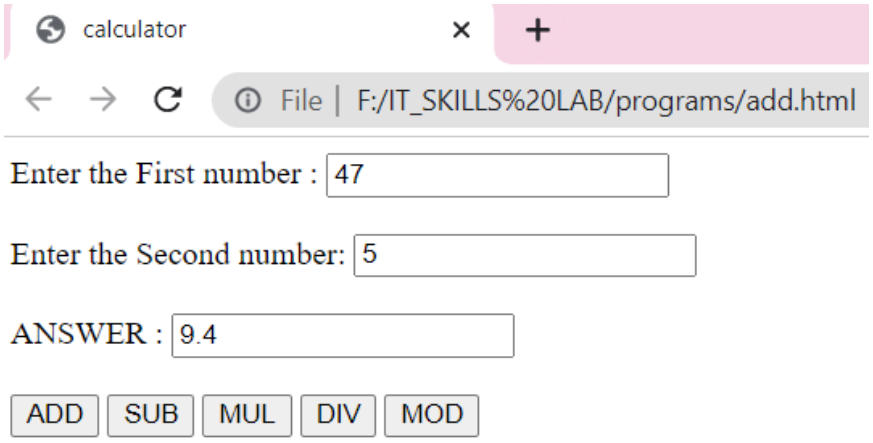
SUB button is clicked



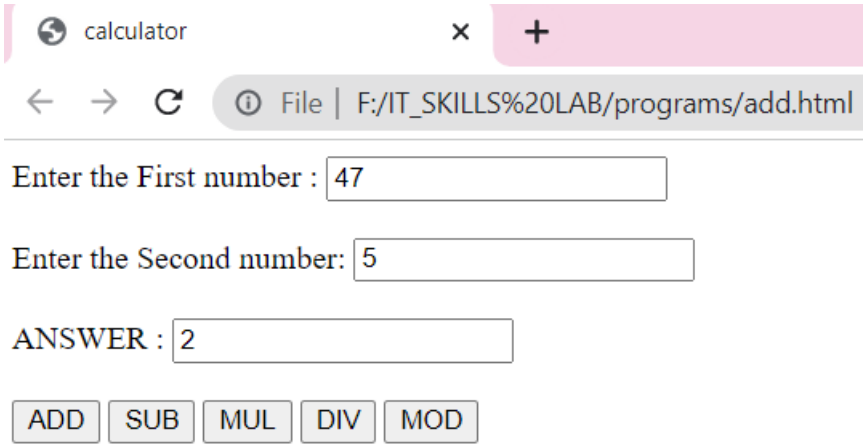
MUL button is clicked



DIV button is clicked



MOD button is clicked

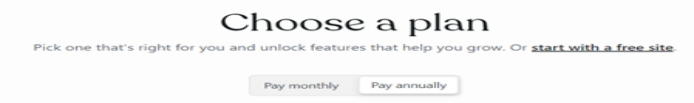


Program 10

Design and create a personal webpage with dashboard

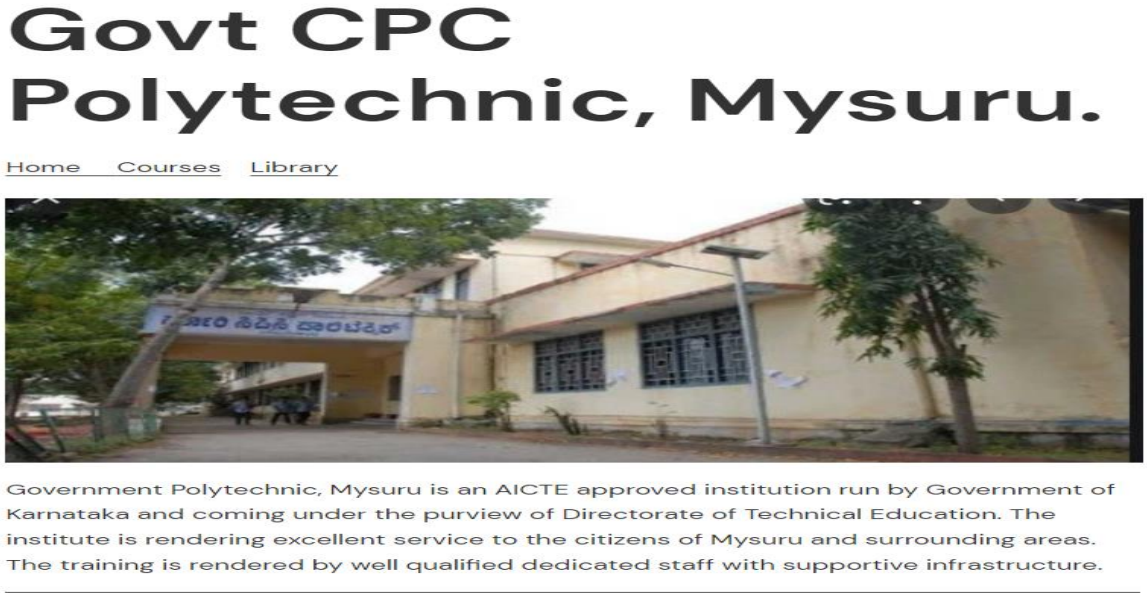
Step 1: In Google search for wordpress
Step 2:Click on button →start your website
Step 3: Login to your google account
Step 4 : Select the Domain name for the website
Example: Domain name—Govt CPC Polytechnic
Step 5: click on Select button

Step 6: click on link→start with a free site



Step 7 : Enter the name for the website
Example: Govt CPCP
Step 8: Select any theme and create the pages
Step 9: click on Page→Add new to add new pages
Step 10: Add Heading, Paragraph, Images, Background Color for required pages
Step 11: Link the pages to Home page.

Step 10: Preview the website & Publish.
Preview of Website



CPC LIBRARY

The library of Govt. CPC Polytechnic is a knowledge center with a vision to serve information needs of its students and faculty. It has a good collection of more than 20000 volumes covering all branches of Science and Engineering. The library is equipped with text books, reference books, encyclopedias, dictionaries, hand books, data books etc. In addition, the library has subscribed to 8 news papers and 10 magazines to meet the general requirements of its users. The library also has seating arrangements for its users to read books and prepare notes.

Students are provided with two library cards for borrowing books. Books are issued to the students on presentation of library cards for a period of 14 days. An overdue charge of 50 paise per day per book is levied from the due date till the book is returned to the library. If the books are lost, then the borrower should replace the books of the same edition or latest edition or pay double the cost of the book after getting permission from the librarian.

SC/ST students are provided with the facility to borrow additional two books from the SC/ST book bank and use them throughout the semester.

Working hours of the library:

Monday to Friday – 10 am to 5.30 pm

Saturday – 10 am to 1.30 pm

Courses Offered

Mechanical Engg

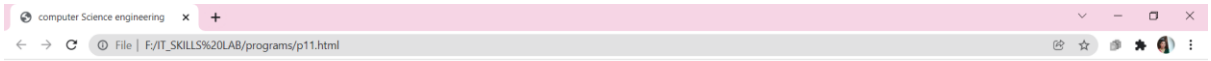
Civil Engg

Program 11

Design and create web page about advantages of business process automation with respect to you branch of engineering

```
<!doctype html>
<html>
        <title>computer Science engineering</title>
</head>
<body>
<h1 style="color:red;">Business Process automation</h1>
<p style="color:blue;font-size:20pt;">
 Automation is the use of technology to accomplish a task with as little human interaction as possible<br>
<img src=”cs.jpg”/>
</p>
<h3 style="color:green;font-size:20pt;"> Advantages of Automation system processes in IT companies: </h3>
<p >
        <ol style="color:green;font-size:18pt;">
                <li>Increase of operational efficiency</li>
                <li>Punctuality in delivering workflow</li>
                <li>Greater control in overall IT processes</li>
                <li>Increased productivity of the company</li>
        </ol>
</p>
<h3 style="color:purple;font-size:20pt;">Areas of automation in computer science </h3>
<p>
        <ol style="color:purple;font-size:18pt;">
                <li>Online marketing</li>
                <li>reporting</li>
                <li>Customer service</li>
                <li>Transportation etc</li>
        </ol>
</p>
```

```
</body>
</html>
```



Business Process automation

Automation is the use of technology to accomplish a task with as little human interaction as possible

Advantages of Automation system processes in IT companies:

1. Increase of operational efficiency
2. Punctuality in delivering workflow
3. Greater control in overall IT processes
4. Increased productivity of the company

Areas of automation in computer science

1. Online marketing
2. reporting
3. Customer service
4. Transportation etc

Program12:

Create a workflow for education loan approval in bank/diploma admission Process

Program13:

Demonstrate ERP with ERPNext Demo for manufacturing, retail and service sector(use any other ERP Tools)

Program14:

Create user account and demonstrate use of Google drive, Google docs, Google Co-lab

a)Google drive: Google Drive, part of Google Workspace, is a safe place to back up and access all your files from any device. Easily invite others to view, edit or leave comments on any of your files or folders.

Every Google Account comes with 15 GB of storage that's shared across Google Drive, Gmail, and Google Photos. When you upgrade to increase total storage for 100 GB or more depending on what plan we choose.

Step 1: Login to gmail go to drive.google.com.

Step 2: At the top left, click **New** → **File Upload** or **Folder Upload.**

Step 3: Choose the file or folder you want to upload.

Step 4: Share the file or folder with friends.

b)Google Docs:

Create and edit text documents directly in the browser. Several people can work at the same time, and every change is saved automatically.

Step 1: Login to gmail go to docs

Step 2: Select Resume

Step 3: Fill up your details

Step 4: Share the document or resume with friends.

c)Google Co-lab:

Colab notebooks allow us to combine **executable code** and **rich text** in a single document, along with **images**, **HTML**,and more. When we create your own Colab notebooks, they are stored in your Google Drive account. We can easily share your Colab notebooks with co-workers or friends, allowing them to comment on your notebooks or even edit them.

i. program to add 2 numbers

```
a =10
b =20
c = a + b
print("the sum is " ,c)
```

ii. program to add 2 numbers

```
a =10
b =20
c = a + b
print("the sum is " ,c)
```

iii. program to add,subtract,multiply and divide 2 munbers

```
a=10
b=20
sum=a + b
diff=a - b
quo=a  / b
pro=a * b
print(" The sum  is " , sum)
print(" The difference  is " , diff)
print(" The product  is " , diff)
print(" The quotient  is " , quo)
```

Program 15: Demonstrate Internet of thing using with Examples

a. Smart home

b. Smart City

c. Smart farming

Program 16:

Installation of antivirus Software

There are many antivirus products available in market like **Avast, McAfee, Kaspersky, Norton, and etc.**

Now we are considering Avast antivirus and below are the steps to install and use this product

Step1: type below link in your internet browser's address bar
https://download.cnet.com/Avast-pro-antivirus/3000_2239_410181058.html

This link redirects you to fill download page

Step 2: click on "download now" button

Step 3: wait for the yellow bar to appear and then right click and choose download the file

Step 4: click on the run and wait the program to be downloading and run

Step 5: once download is finished this screen will come up. Click on next

Step 6: uncheck participation and check custom installation and click "next" to continue

Step 7: choose install in trial mode and click on "next"

Step 8: choose custom setting and uncheck network slide

Step 9: Then click on "next" to continue program will install itself and Avast will do a quick scan, setup will finish.

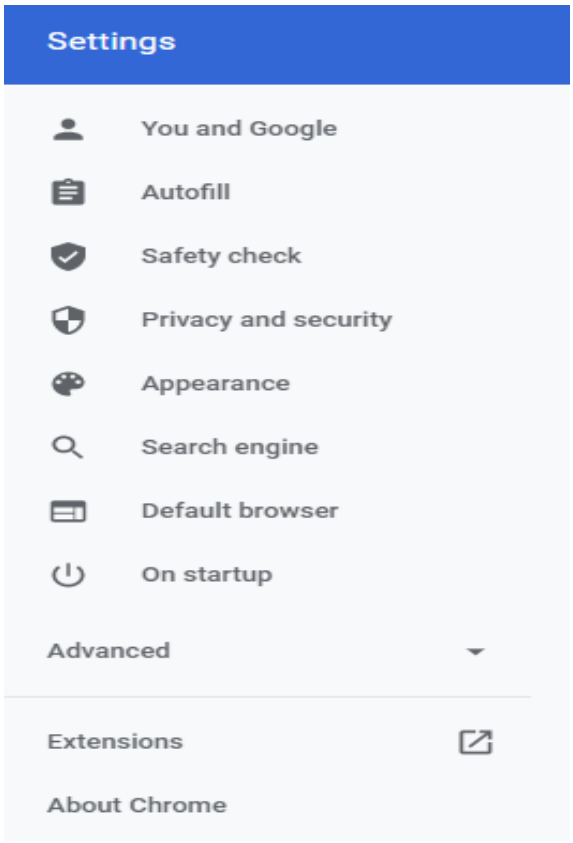
Step 10: Double click on the license file that is in the attachment "license.Avastlic"

Step 11: Say "yes" and your installation has been complete click "OK" to close

Program 17: Demonstration and hands on browser settings

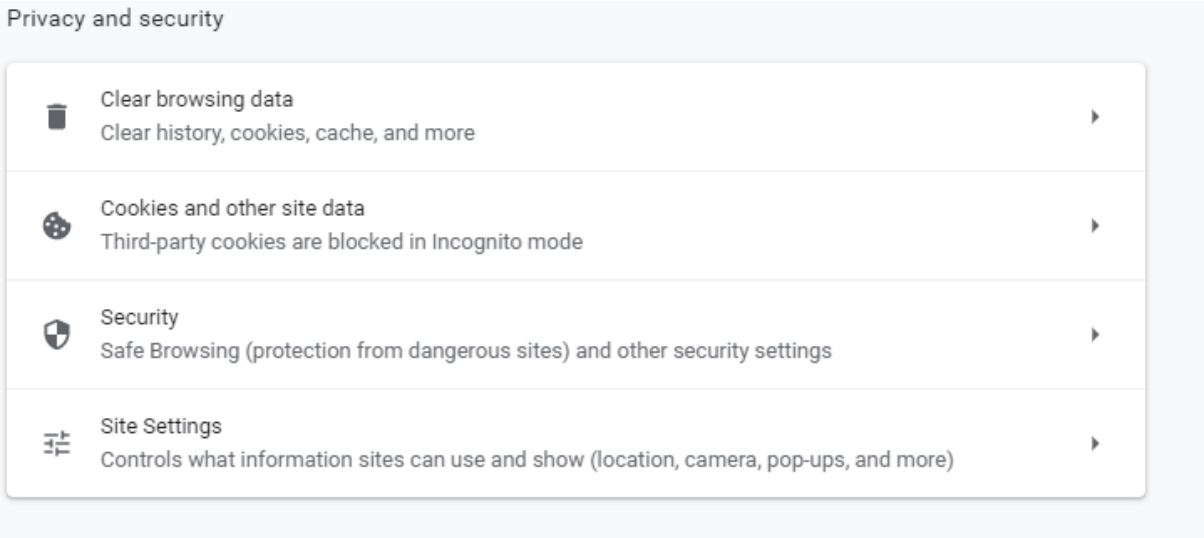
Go to Google Chrome Settings
The options in Google chrome settings are:

- **You and Google:-**We can synchronize and personalize chrome.
- **Autofill:** It has options like passwords, Payment methods, address etc.
- **Safety check:** -Here Chrome can help keep you safe from bad extensions etc.
- **Privacy and security:** -Here we can clear browsing history, cookies and cache. Also set permission to access camera, microphone, sound etc…
- **Appearance:** - Can change the theme, font etc…
- **Search engine:-** This option is used to set Search engine
- **Default browser:** - This option is used to set the default browser.
- **On startup:-** In this option we have Open the New Tab page, Continue where you left off,
- **Advanced-** It has settings of Language, downloads, Accessibility, system, reset and cleanup.
- **Extensions:-**This option is used to add the extensions to my browser like google Docs, Slides etc.
- **About chrome:** - It gives version of Google chrome used and we can also update the browser.



Program18:

Demonstration and hands on privacy settings and password policys



- Open Google Chrome on the Computer.
- Click on ⋮ the menu for options.
- Select **Settings** from the list.
- Scroll down to the **Privacy and security** section.
- Now visit every menu within this section and **customize** based on your needs.

The important chrome security settings are under the Site Settings menu and the More option. Just **toggle the buttons to turn OFF** where you think it's not relevant for you or does not need those permissions.

It's recommended that you clear the data stored **in browsing history, cookies, and cache storage of Google Chrome** on the computer occasionally (at least once a month).

This will improve the privacy and also enhance the security of your chrome browser from any theft. You can also control how to share the data and behavior with third-party trackers.

Password Policy

- Passwords are essential to the security of online accounts, granting authorized access for the legitimate user to carry out tasks and keeping everyone else out.
- A password policy must be in place to provide a standard for creating strong passwords, which staff must follow whenever there is a password requirement.

Enforce using strong passwords

Many policies require a minimum password length. Eight characters is typical but may not be appropriate. The longer passwords are generally more secure.

Some policies suggest or impose requirements on what type of password a user can choose, such as:

- The use of both upper-case and lower-case letters (case sensitivity)
- Inclusion of one or more numerical digits
- Inclusion of special characters, such as @, #, $.
- It must be very unique from your previously used passwords.
-

Password duration

Some policies require users to change passwords periodically, often every 90 or 180 days. The benefit of password expiration, however, is more. Systems that implement such policies sometimes prevent users from picking a password too close to a previous password selection.

Program 18

Demonstration of common security threats (using Videos)

a) **Phishing**
   - Phishing is a cyber attack often used to steal user data, including login credentials and credit card numbers.
   - Phishing uses email as a weapon. The goal is to trick the email recipient into believing that the message is something they want or need.
   - Example: a request from their bank, for instance, or a note from someone in their company — and to click a link or download an attachment.
   - **https://www.ecsu.edu/administration/information-technology/resources/infosec/phishing-explained.html**
   - **https://youtu.be/9TRR6lHviQc**

b) **DoS attack**
   - **Denial-of-Service (DoS) attack** is an attack meant to shut down a machine or network, making it inaccessible to its intended users.
   - DoS attacks accomplish this by flooding the target with traffic, or sending it information that results to crash.
   - **https://www.kaspersky.co.in/resource-center/threats/ddos-attacks**
   - **https://youtu.be/yLbC7G71IyE**

c) **Man in the middle attack**
   - A man-in-the-middle attack is a type of eavesdropping attack, where attackers interrupt an existing conversation or data transfer.
   - After inserting themselves in the "middle" of the transfer, the attackers pretend to be both legitimate participants.
   - This enables an attacker to intercept information and data from either party while also sending malicious links or other information to both legitimate users.
   - **https://youtu.be/DgqID9k83oQ**

d) **Spamming**
   - Spam attacks are defined as an organized and unauthorized use of an app to send thousands of messages to their users.
   - These messages are sent by fake or hacked profiles, and often include unreal advertisements and links to which real users are asked to click on.
   - Such attacks can have a large and negative impact on the user's enjoyment of the app.
   - **https://youtu.be/BnmneAjVrM4**

e) Virus

- A computer virus is a small software program that spreads from one computer to another and interferes with computer operation.
- A computer virus might corrupt or delete data on a computer, use an email program to spread the virus to other computers, or even delete everything on the hard disk.
- Viruses can be disguised as attachments of funny images, greeting cards, or audio and video files.
- Computer viruses also spread through downloads on the Internet.
- They can be hidden in pirated software or in other files or programs that you might download.
- **https://youtu.be/GB21O7YMTKI**