COMPUTER NETWORKS

- PRACTICLE FILE-

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2. Write html code to generate following output.

• Coffee • Tea

 o Black Tea

o Green Tea

• Milk

3. Design an html form to take the information of a customer visiting a departmental store such as name, contact phone no, preferred days of purchasing, favourite item (to be selected from a list of items), suggestions etc. One should provide button to Submit as well as Reset the form contents

4. Design an html form to take the information of an article to be uploaded such as file path, author name, type (technical, literary, general), subject topic (to be selected from a list) etc. One should provide button to Submit as well as Reset the form contents.

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6. Write a HTML code to generate following output.

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▯ Registration and user Login

▯ User profile page

▯ Books catalog

▯ Shopping cart

▯ Payment by credit card Order Conformation

NETWORK ALGORITHMS PRACTICAL LIST

1. Simulate Cyclic Redundancy Check (CRC) Error Detection algorithm for Noisy channel.

```cpp
#include <iostream>
#include <cstdlib>

using namespace std;

// Structure to represent the CRC generator polynomial
struct CRCGenerator {
    int *coefficients;
    int size;
};

// Structure to represent the message
struct Message {
    int *data;
    int size;
};

// Function to calculate CRC
void calc(int *temp, int *poly, int size) {
    for (int i = 0; i < size; i++) {
        if (temp[i] == poly[i])
            temp[i] = 0;
        else
            temp[i] = 1;
    }
}

// Function to simulate CRC error detection
void simulateCRCError(Message &msg, const CRCGenerator &crcGen) {
```

```cpp
        int *temp = new int[crcGen.size];
        int *zeroPoly = new int[crcGen.size];

        for (int i = 0; i < crcGen.size; i++) {
            temp[i] = msg.data[i];
            zeroPoly[i] = 0;
        }

        for (int i = crcGen.size - 1; i < msg.size; i++) {
            temp[crcGen.size - 1] = msg.data[i];

            if (temp[0] == 0)
                calc(temp, zeroPoly, crcGen.size);
            else
                calc(temp, crcGen.coefficients, crcGen.size);

            for (int j = 1; j < crcGen.size; j++) {
                temp[j - 1] = temp[j];
            }
        }

        cout << "\nCRC is: ";
        for (int i = 0; i < crcGen.size - 1; i++) {
            cout << temp[i];
        }

        bool errorDetected = false;
        for (int i = 0; i < crcGen.size - 1; i++) {
            if (temp[i] == 1) {
                errorDetected = true;
                break;
            }
        }

        if (errorDetected)
            cout << "\nError detected\n";
        else
            cout << "\nNo error\n";

        delete[] temp;
        delete[] zeroPoly;
}

int main() {
    CRCGenerator crcGen;
    Message msg;

    cout << "Enter the size of key: ";
```

```cpp
    cin >> crcGen.size;
    crcGen.coefficients = new int[crcGen.size];

    cout << "Enter key: ";
    for (int i = 0; i < crcGen.size; i++)
        cin >> crcGen.coefficients[i];

    cout << "Enter the size of message: ";
    cin >> msg.size;
    msg.data = new int[msg.size + crcGen.size - 1];

    cout << "Enter message: ";
    for (int i = 0; i < msg.size; i++)
        cin >> msg.data[i];

    for (int i = msg.size; i < msg.size + crcGen.size - 1; i++)
        msg.data[i] = 0;

    simulateCRCError(msg, crcGen);

    return 0;
}
```

OUTPUT :

```
PS C:\Users\saura\OneDrive\Desktop\HTML tutorial\.vscode> cd "c:\Users\saura\
OneDrive\Desktop\HTML tutorial\.vscode\.vscode\" ; if ($?) { g++ CRC.cpp -o C
RC } ; if ($?) { .\CRC }
Enter the size of key: 4
Enter key: 1 0 0 1
Enter the size of message: 8
Enter message: 1 1 0 0 1 1 1 0

CRC is: 100
Error detected
PS C:\Users\saura\OneDrive\Desktop\HTML tutorial\.vscode\.vscode>
```

2. Simulate and implement stop and wait protocol for noisy channel

```c
#include<stdio.h>
int main(){
    int windowsize,i,ack,sent=0;
    printf("Enter window size: \n");
    scanf("%d",&windowsize);
```

```
  while(1){
      for(i=0; i<=windowsize; i++)
      {

          printf("Frames %d has been transmitted \n",sent+1);
          printf("Acknowledgement has been received for frame %d \n",sent);
          sent++;
          if(windowsize == sent)
              break;

      }

          break;

  }
  printf(" \n");
  printf("All frames has been sent successfully. ");
  return 0;
}
```

```
                                                    > cd "c:\User
s\saura\OneDrive\Desktop\HTML tutorial\.vscode\.vscode\" ; if ($?) { g++ stop
.cpp -o stop } ; if ($?) { .\stop }
Enter window size:
5
Frames 1 has been transmitted
Acknowledgement has been received for frame 0
Frames 2 has been transmitted
Acknowledgement has been received for frame 1
Frames 3 has been transmitted
Acknowledgement has been received for frame 2
Frames 4 has been transmitted
Acknowledgement has been received for frame 3
Frames 5 has been transmitted
Acknowledgement has been received for frame 4

All frames has been sent successfully.
PS C:\Users\saura\OneDrive\Desktop\HTML tutorial\.vscode\.vscode>
```

3 .Shortest Path algorithm.

```c
#include<stdio.h>
#include<conio.h>
#define INFINITY 9999
#define MAX 10

void dijikstra(int G[MAX][MAX], int n, int startnode);

int main(){
    int G[MAX][MAX], i, j, n, u;
    printf("\nEnter the no. of vertices:: ");
    scanf("%d", &n);
    printf("\nEnter the adjacency matrix::\n");
    for(i=0;i < n;i++)
        for(j=0;j < n;j++)
            scanf("%d", &G[i][j]);
    printf("\nEnter the starting node:: ");
    scanf("%d", &u);
    dijikstra(G,n,u);
    getch();
}

void dijikstra(int G[MAX][MAX], int n, int startnode){
    int cost[MAX][MAX], distance[MAX], pred[MAX];
    int visited[MAX], count, mindistance, nextnode, i,j;
    for(i=0;i < n;i++)
        for(j=0;j < n;j++)
            if(G[i][j]==0)
                cost[i][j]=INFINITY;
            else
                cost[i][j]=G[i][j];

    for(i=0;i< n;i++)
    {
        distance[i]=cost[startnode][i];
```

```c
            pred[i]=startnode;
            visited[i]=0;
        }
    distance[startnode]=0;
    visited[startnode]=1;
    count=1;
    while(count < n-1){
        mindistance=INFINITY;
        for(i=0;i < n;i++)
            if(distance[i] < mindistance&&!visited[i])
            {
                mindistance=distance[i];
                nextnode=i;
            }
        visited[nextnode]=1;
        for(i=0;i < n;i++)
            if(!visited[i])
                if(mindistance+cost[nextnode][i] < distance[i])
                {
                    distance[i]=mindistance+cost[nextnode][i];
                    pred[i]=nextnode;
                }
            count++;
    }

    for(i=0;i < n;i++)
        if(i!=startnode)
        {
            printf("\nDistance of %d = %d", i, distance[i]);
            printf("\nPath = %d", i);
            j=i;
            do
            {
                j=pred[j];
                printf(" <-%d", j);
            }
            while(j!=startnode);
        }
}
```

OUTPUT :

```
PS C:\Users\saura\OneDrive\Desktop\HTML tutorial\.vscode\.vscode> cd "c:\Users\saur
a\OneDrive\Desktop\HTML tutorial\.vscode\.vscode\" ; if ($?) { g++ shortpath.cpp -o
 shortpath } ; if ($?) { .\shortpath }

Enter the no. of vertices:: 5

Enter the adjacency matrix::
0 10 20 0 0
10 0 5 25 5
20 5 0 15 10
0 25 15 0 20
0 0 10 20 0

Enter the starting node:: 0

Distance of 1 = 10
Path = 1 <-0
Distance of 2 = 15
Path = 2 <-1 <-0
Distance of 3 = 30
Path = 3 <-2 <-1 <-0
Distance of 4 = 15
Path = 4 <-1 <-0
```

4.Simulate and implement selective repeat sliding window protocol.

```c
#include<stdio.h>
int main(){
    int windowsize,i,ack,sent=0;

    printf("Enter Window size \n");
    scanf("%d",&windowsize);

    while(1){

        for(i=0; i<windowsize; i++){

            printf("Frame %d has been transmitted \n", sent+1);
            sent++;

            if(windowsize == sent)
                break;
        }


        printf("Enter the frame for which acknowledgement has not been
received \n");
        scanf("%d",&ack);

        printf("Frame %d has been sent \n",ack);
        break;
    }

    printf("All Frames has been sent Successfully: ");
```

```
    return 0;

}
```

```
                                                    > cd "c:\Users\
a\OneDrive\Desktop\HTML tutorial\.vscode\.vscode\" ; if ($?) { g++ selective.cp
 selective } ; if ($?) { .\selective }
Enter Window size
5
Frame 1 has been transmitted
Frame 2 has been transmitted
Frame 3 has been transmitted
Frame 4 has been transmitted
Frame 5 has been transmitted
Enter the frame for which acknowledgement has not been received
2
Frame 2 has been sent
All Frames has been sent Successfully:
PS C:\Users\saura\OneDrive\Desktop\HTML tutorial\.vscode\.vscode> 
```

5. Simulate and implement go back N sliding window protocol.

```c
#include<stdio.h>
int main(){
    int windowsize,ack,i,sent=0;
    printf("Enter the size of Window: \n");
    scanf("%d",&windowsize);
    while(1){
        for(i=0; i<windowsize;i++){
            printf("Frames %d has been transmitted \n",sent);
            sent++;

            if(windowsize == sent)
                break;

        }

        printf("Enter last acknowledgement received\n");
        scanf("%d",&ack);

        if(ack == windowsize)
            break;
        else
            sent = ack;

    }
    printf("All frames has been sent successfully: ");
    return 0;
```

```
}
```

```
                                          > cd "c:\Users\saur
a\OneDrive\Desktop\HTML tutorial\.vscode\.vscode\" ; if ($?) { g++ goback.cpp -o go
back } ; if ($?) { .\goback }
Enter the size of Window:
4
Frames 0 has been transmitted
Frames 1 has been transmitted
Frames 2 has been transmitted
Frames 3 has been transmitted
Enter last acknowledgement received
3
Frames 3 has been transmitted
Enter last acknowledgement received
```

HTML Practicle

1. Write a HTML program to design a form which should allow to enter your personal data.

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <form>
        <table>
            <tr>
                <td>First Name</td>
                <td><input name="fname"></td>
            </tr>
            <tr>
                <td>Last Name</td>
                <td><input name="lname"></td>
            </tr>
            <tr>
                <td>Adress</td>
                <td><input type="text"></td>
            </tr>
```

```html
        <tr>
            <td>Gmail</td>
            <td><input type="text"></td>
        </tr>
        <tr>
            <td>Password</td>
            <td><input type="password" name="ps"></td>
        </tr>
        <tr>
            <td>Gender</td>
            <td>
                <input type="radio" name="gn">male
                <input type="radio" name="gn">Female
                <input type="radio" name="gn">Other
            </td>
        </tr>
        <tr>
            <td>hobby</td>
            <td>
                <input type="checkbox" name="sp">painting
                <input type="checkbox" name="sp">Drawing
                <input type="checkbox" name="sp">singing
                <input type="checkbox" name="sp">dancing
            </td>
        </tr>
        <tr>
            <td><input type="submit"></td>
        </tr>
    </table>
  </form>
</body>
</html>
```

OUTPUT :

First Name [   ]

Last Name [   ]

Adress [   ]

Gmail [   ]

Password [   ]

Gender ○ male ○ Female ○ Other

hobby ☐ painting ☐ Drawing ☐ singing ☐ dancing

[Submit]

2. Write html code to generate following output.

• Coffee • Tea

 o Black Tea

o Green Tea

• Milk

```html
<html>
<head>
<title> Prog 2 </title>
</head>

<body>

<ul>
<li>Coffee</li>
<li>

Tea
    <ul><li>Black Coffee</li>
        <li> Green Tea </li>
    </ul>

</li>
<li>Milk</li>
</ul>

</body>

</html>
```

OUTPUT :

- Coffee
- Tea
  - Black Coffee
  - Green Tea
- Milk

3. Design an html form to take the information of a customer visiting a departmental store such as name, contact phone no, preferred days of purchasing, favourite item (to be selected from a list of items), suggestions etc. One should provide button to Submit as well as Reset the form contents

```html
<html>
<head>
<title>Prog 3</title>
</head>

<body>

<form>
<fieldset>

<label> Name </label>
<input type="label" name=nm >
<br><br>

<label> Contact Number </label>
<input type="label" name=cnmun >
<br><br>

<label> Preferred Days </label>
<select name = "days">
            <option value="SN">Sunday</option>
            <option value="MN">Monday</option>
            <option value="TU">Tuesday</option>
            <option value="WD">Wednesday</option>
</select>

<br><br>

<label>Favourite item</label>
<select name = "item">
            <option > Tomato </option>
            <option > Potato </option>
            <option > Mustard Oil </option>
            <option > coconut Oil </option>



</select>
<br><br>
<input type="submit">
```

```
<input type="reset">




</fieldset>
</form>
</body>

</html>
```

Name	
Contact Number	
Preferred Days	Sunday ▼
Favourite item	Tomato ▼
Submit Reset	

4. Design an html form to take the information of an article to be uploaded such as file path, author name, type (technical, literary, general), subject topic (to be selected from a list) etc. One should provide button to Submit as well as Reset the form contents.

```
<html>
<head>

<title> Prog 4 </title>

</head>
<body>

<form>
<fieldset>
<label> Author Name </label>
<input type = "label" name = Anm>

<br><br>

<label> type </label>
<select>
```

```
        <option> Technical </option>
        <option> Literary </option>
        <option> General </option>

</select>

<label> Upload Article </label>
<input type = "file" id = "my file" name = "browse" multiple >


</fieldset>
</form>
</body>
</html>
```

OUTPUT:

5. Design an HTML document using Table related tags align the images


```
<!DOCTYPE html>
<html>
<head>
    <title>Prog 5</title>

    <style>
        table, td, tr {
            border: 2px solid black;
            text-align: center;
        }

        table, tr, td {
            border-collapse: collapse;
```

```
        }

        th, td, table {
            padding: 25px;
        }

        tr:hover {
            background-color: yellow;
            text-decoration: underline;
        }
    </style>
</head>
<body>

<table cellspacing="5" cellpadding="5" width="800">
    <tr>
        <td> <img src="7\images/p1.jpg" width="150"
            height="150" alt="Image 1"> </td>
        <td> <img src="7/images/p2.jpeg" alt="Image 2"> </td>
        <td> <img src="7/images/p3.jpg" width="150"
            height="150" alt="Image 3"> </td>
        <td> <img src="7/images/p4.jpg" width="150"
            height="150" alt="Image 4"> </td>
    </tr>
    <tr>
        <td> <img src="7/images/p5.jpg" alt="Image 5"> </td>
        <td colspan="2"><h1><center> Anime </center></h1></td>
        <td> <img src="7/images/p6.jpg"  width="150"
            height="150" alt="Image 6"> </td>
    </tr>
    <tr>
        <td> <img src="7/images/p7.jpeg" height="
            150" alt="Image 7"> </td>
        <td> <img src="7/images/p8.jpeg" alt="Image 8"> </td>
        <td> <img src="7/images/p9.jpg" width="150" heigh="150" alt="Image 9">
</td>
        <td> <img src="7/images/p10.jpeg" alt="Image 10"> </td>
    </tr>
</table>

</body>
</html>
```
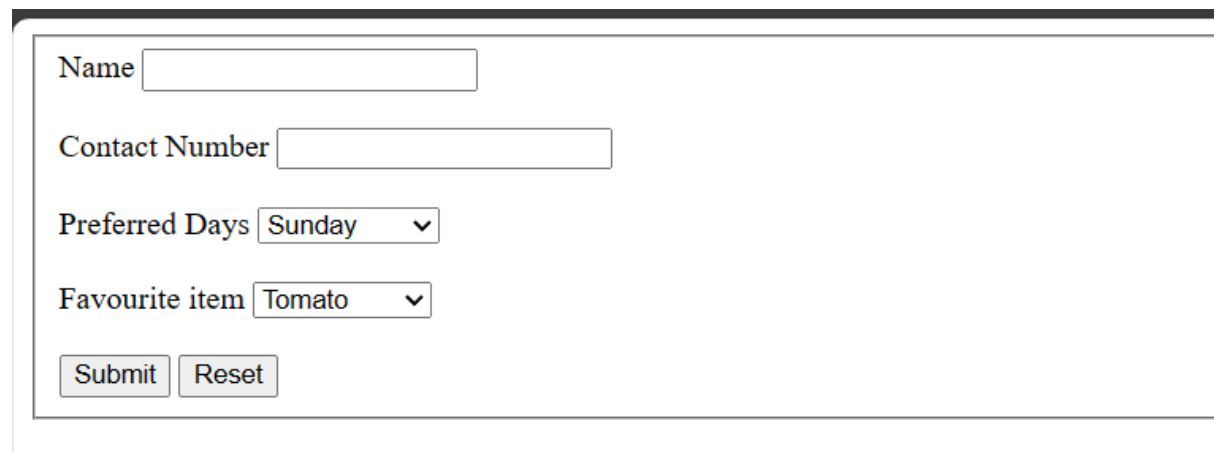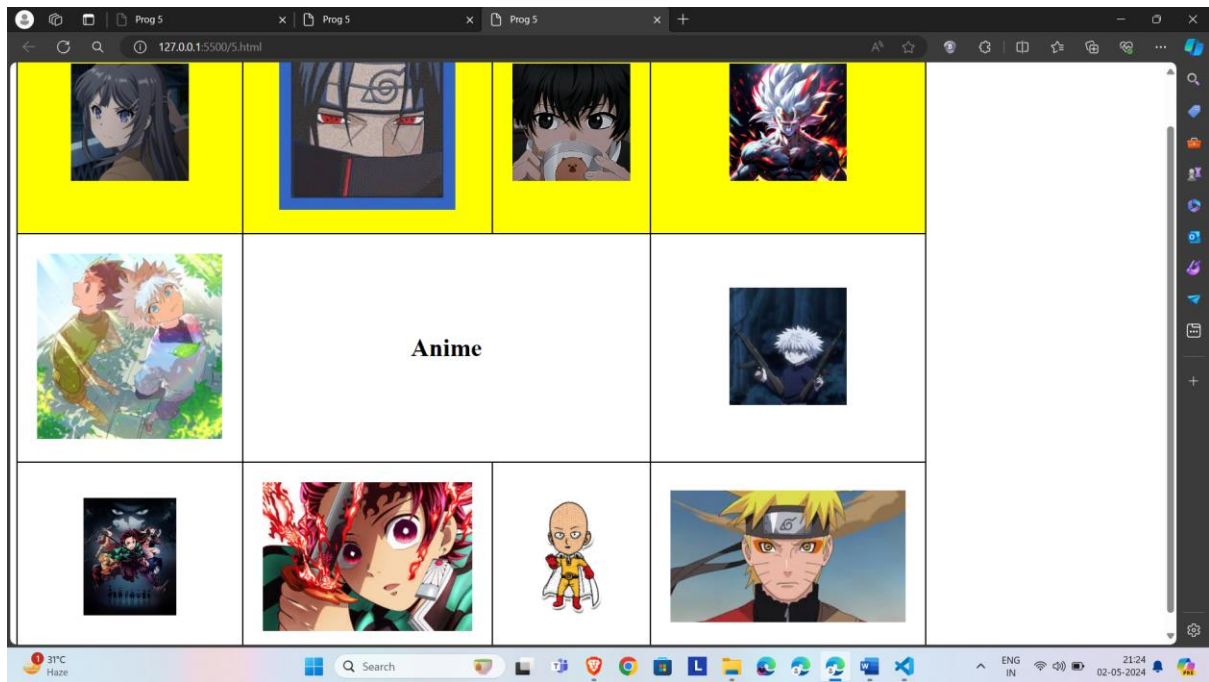
OUTPUT :

6 .Write a HTML code to generate following output.


```
<html>
<head>
<title> Prog 6 </title>

</head>
```

```html
<body>
<form>
<fieldset>
<label> Enter Name of your friend </label>
<input type = "label" name = frnm>
<br><br>

<label> Choose the file you want to post to your friend  </label>
<br><br>
<input type="label" name= "post">

<input type="file" id = "my file" name="browse" multiple>
<br><br>

<label> what does this file contain? </label>
<br><br>
<input type = "checkbox" name = "img">Image
<input type = "checkbox" name = "sc">Source code
<input type = "checkbox" name = "bin">Binary Code
<br><br>

<label> You have completed the form </label>
<input type="submit" value="submit query">

</fieldset>
</form>
</body>

</html>
```

OUTPUT :

Enter Name of your friend [   ]

Choose the file you want to post to your friend

[   ] Choose Files No file chosen

what does this file contain?

☐ Image ☐ Source code ☐ Binary Code

You have completed the form submit query

7. Develop static pages (using only HTML) of an online Book store.The website should consist of following pages.

```html
<html>

<head>
    <title>
        Booksite </title>
</head>

<body bgcolor="Teal">
    <center>
        <strong>
            <h1>Welcome to My web page</h1>
        </strong>
        <form method="post" action="login.html" target=_blank>
            <h4>for books</h4><input type="submit" value="click here">
        </form>
    </center>
</body>

</html>
```

OUTPUT :

Registration and user Login

```html
<html>

<head>
    <title>
        login page</title>
</head>
```

```html
<body bgcolor="offwhite">
    <center><strong>
            <h1> Booksite </h1>
        </strong></center>
    <form method="post" action="./Catlog.html">
        <right>
            <table align="left">
                <tr>
                    <td>
                        <h4>user name
                    </td>
                    <td><input type="text"></td>
                <tr>
                <tr>
                    <td>
                        <h4>password
                    </td>
                    <td><input type="password"></td>
                </tr>
                <tr>
                    <td>
                        <h4>confirm password
                    </td>
                    <td><input type="password"></td>
                </tr>
                <tr>
                    <td>
                        <h4>male   
                            <option>
                                <input type="radio" name="sex" id="male">
                    </td>
                    <td>
                        <h4>female    
                            <input type="radio" name="sex" id="female">
                    </td>
                    </option>
                </tr>
                <tr>
                    <td>Address</td>
                    <td><textarea name="address" rows=5 cols=19>
</textarea>
                    </td>
                <tr>
                    <td>
                        <input type="submit" value="submit">
                    </td>
                    <td>
```
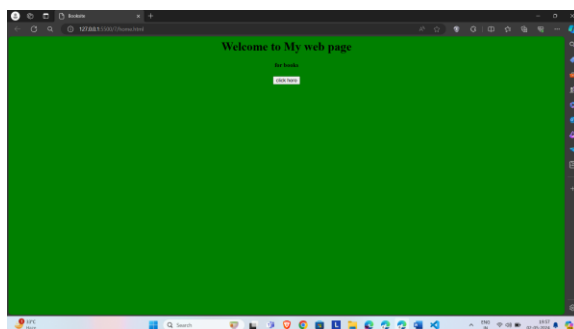
```html
                    <input type="reset" value="reset">
                </td>
            </tr>
        </form>
</body>

</html>
```

OUTPUT :

LOGIN :

```html
<html>

<head>
    <title>
        login</title>
</head>

<body bgcolor="lightblue">
    <center>
        <strong>
            <h1> Booksite </h1>
        </strong>
    </center>
    <right>
```
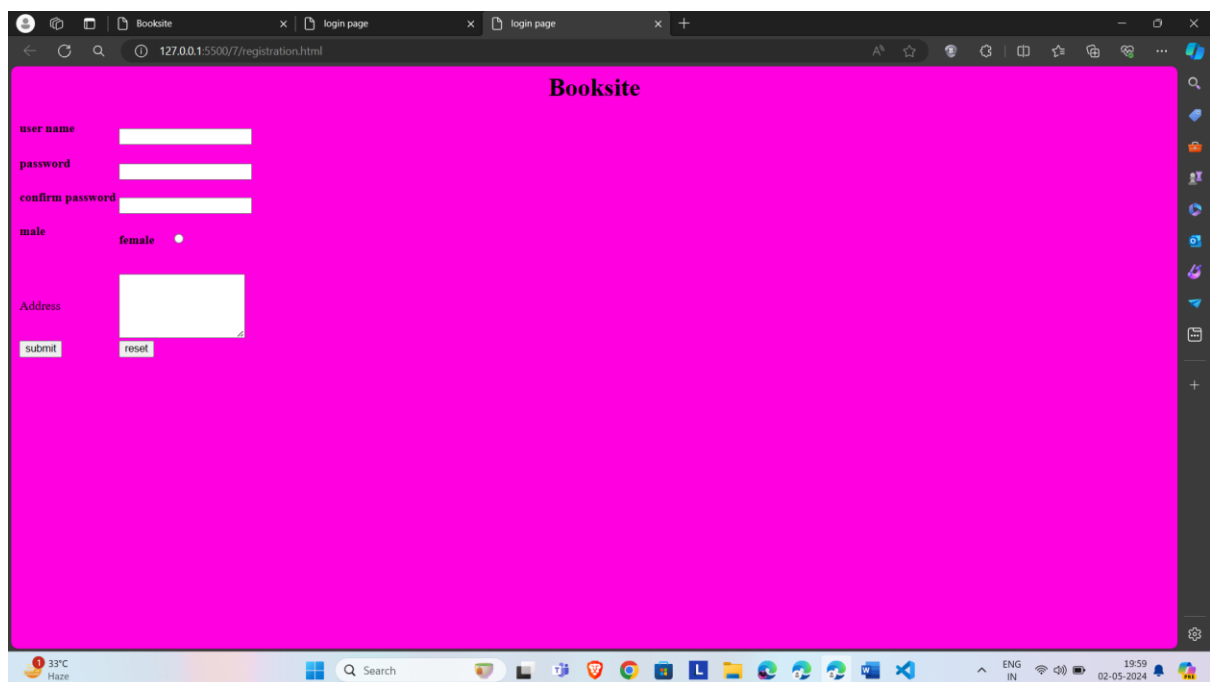
```html
        <table align="right">
            <tr>
                <td>
                    <h4>user name
                </td>
                <td><input type="text"></td>
                <td></td>
            </tr>
            <tr>
                <td>
                    <h4>password
                </td>
                <td><input type="password"></td>
                <td></td>
            </tr>
            <tr>
                <td>
                    <form method="post" action="./Catlog.html">
                        <input type="submit" value="submit">
                    </form>
                </td>
                <td>
                    <form method="post" action="./Registration.html">
                        <input type="submit" value="register">
                          
                        <input type="reset" value="reset">
                    </form>
                </td>
            </tr>
        </table>
</body>

</html>
```

OUTPUT :

```html
<html>

<head>
    <title>
        userprofile</title>
</head>

<body bgcolor="Golden">
    <center>
        <strong>
            <h1>Welcome to Booksite Online Book Store </h1>
        </strong>
    </center>
<center>
        Edit your profile here...
        <form method="post" action="catalog.html">
            <right>
                <table align="left">
                    <tr>
                        <td>
                            <h4>Edit user name
                        </td>
                        <td><input type="text"></td>
                    <tr>
                    <tr>
                        <td>
                            <h4>Edit password
                        </td>
                        <td><input type="password"></td>
```
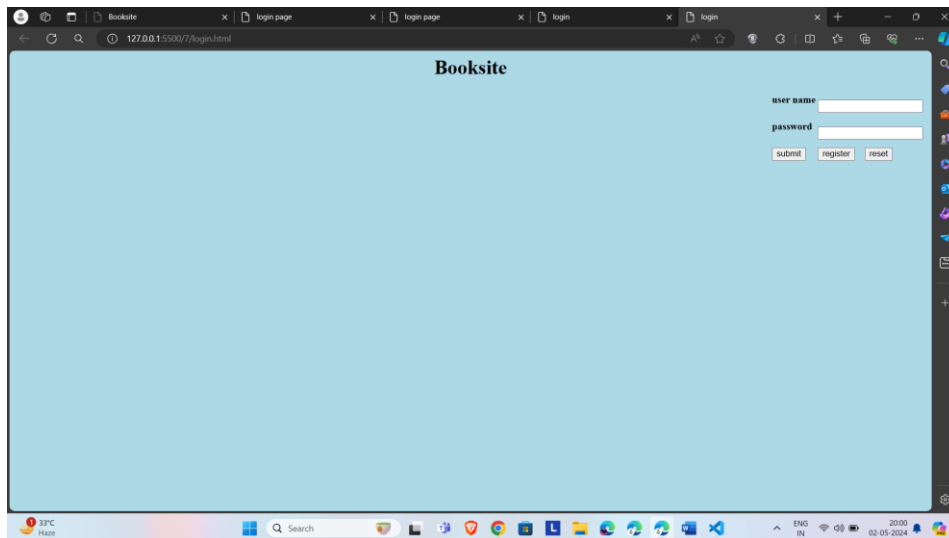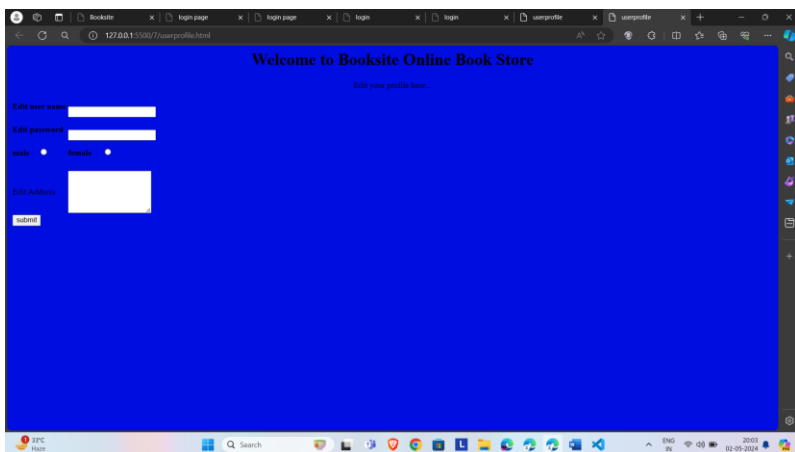
```html
                        </tr>
                        <tr>
                            <option>
                                <td>
                                    <h4>male   
                                        <input type="radio" name="sex" id="male">
                                </td>
                                <td>
                                    <h4>female    
                                        <input type="radio" name="sex"
id="female">
                                </td>
                            </option>
                        </tr>
                        <tr>
                            <td>Edit Address</td>
                            <td><textarea name="address" rows=5 cols=19>
</textarea>
                            </td>
                        <tr>
                            <td>
                                <input type="submit" value="submit">
                            </td>
                        </tr>
</center>
    </form>
</body>

</html>
```

OUTPUT :

```html
<html>
```

```html
<head>
    <title>
        books catalog</title>
</head>

<body bgcolor="pink">
    <center>
        <h1>Booksite</h1>
    </center>
    <center>
        <form method="post" action="shopping.html">
            <left>
                <table>
                    <tr>
                        <td><b>
                                <h3>frontend books</td>
                        <td></td>
                    </tr>
                    <tr>
                        <td></td>
                        <td>
                            <h4>C&Ds
                        </td>
                    </tr>
                    <tr>
                        <td></td>
                        <td>
                            <h4>Ads
                        </td>
                    </tr>
                    <tr>
                        <td></td>
                        <td>
                            <h4>JAVA
                        </td>
                    </tr>
                    <tr>
                        <td><b>
                                <h3>backend books</td>
                        <td></td>
                    </tr>
                    <tr>
                        <td></td>
                        <td>
                            <h4>Oracle
                        </td>
                    </tr>
```
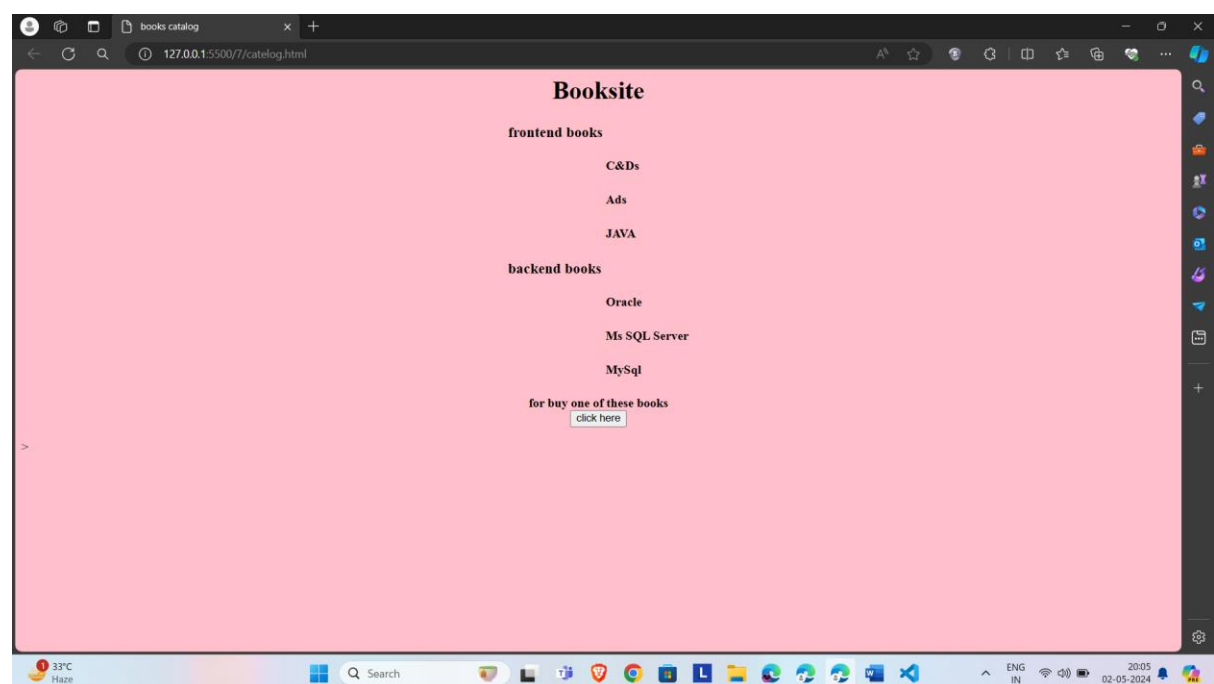
```
                    <tr>
                        <td></td>
                        <td>
                            <h4>Ms SQL Server
                        </td>
                    </tr>
                    <tr>
                        <td></td>
                        <td>
                            <h4>MySql
                        </td>
                    </tr>
                </table>
                </h4>
                <center>
                    <b>for buy one of these books
                        <br>
                    </b><input type="submit" value="click here">
                </center>
        </center>>
        </form>
</body>

</html>
```

OUTPUT :

Shopping cart :

```html
<html>

<head>
    <title>shopping cart</title>
</head>

<body bgcolor="Purple">
    <center>
        <h1>
            Shopping Cart</h1>
    </center>
    <br><br><br><br><br>
    <table align="center">
        <tr>
            <td>Text Books</td>
            <td>
                <select>
                    <optgroup label="select the book">
                        <option value="C&Ds">C&Ds
                        <option value="Ads">Ads
                        <option value="Java">Java
                        <option value="Oracle">Oracle
                        <option value="Ms SQL Server">Ms SQL Server
                        <option value="MySql">MySql
                    </optgroup>
                </select>
            </td>
        </tr>
        <tr>
            <td>
                Quantity</td>
            <td>
                <input type="text" id="q">
            </td>
        </tr>
        <tr>
            <td></td>
            <td>
                <form method=post action="payment.html">
                    <input type="submit" value=ok />
                </form>
            </td>
        </tr>
    </table>
    <center>
        <pre>Cost of one book is"500" + shipping "100"</pre>
    </center>
```

```
        <body>

</html>
```

OUTPUT :

Payment by credit card

```
<html>

<head>
    <title>payment</title>
</head>

<body bgcolor="babypink">
    <center>
        <h1>Payment By Credit Card</h1>
    </center>
    <form method=post action="./OrderConformation.html">
        <br><br><br><br><br>
        <table align="center">
            <tr>
                <td>
                    <h4>Total Amount</h4>
                </td>
                <td><input type="text">
```
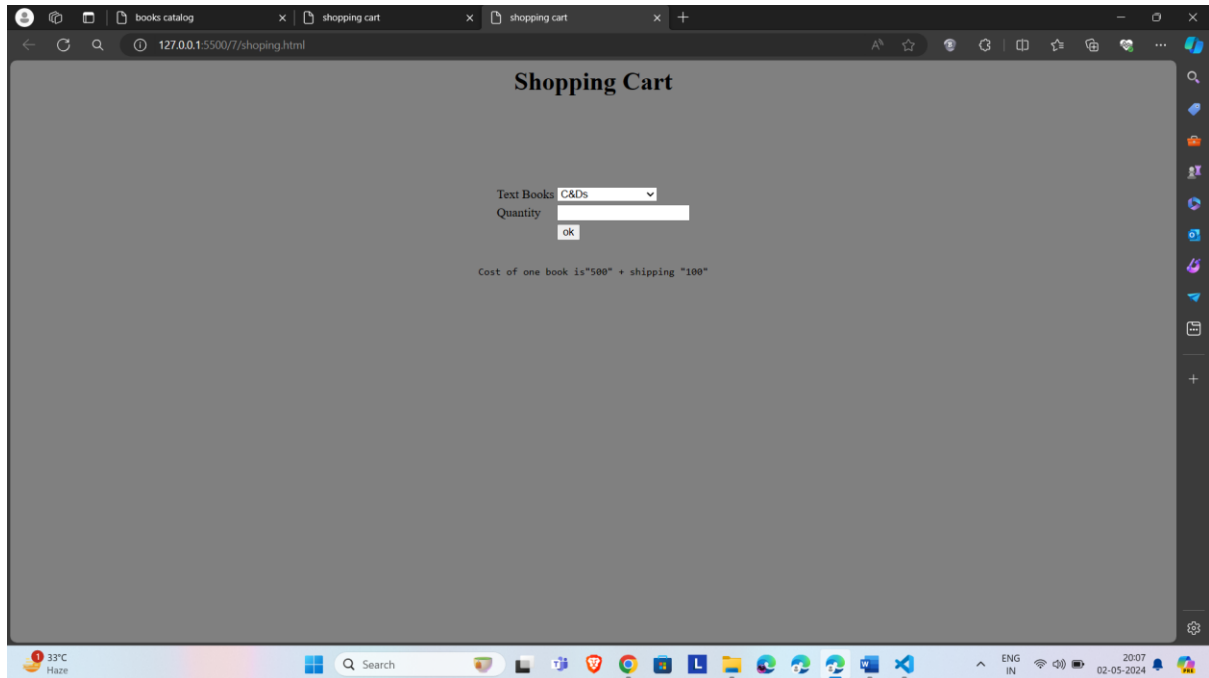
```
                </td>
            </tr>
            <tr>
                <td>
                    <h4>Credit Card Number
                </td>
                <td><input type="text"></td>
            </tr>
            <tr>
                <td>
                </td>
                <td><input type="submit" value=OK>
                </td>
            </tr>
        </table>
    </form>
</body>

</html>
```
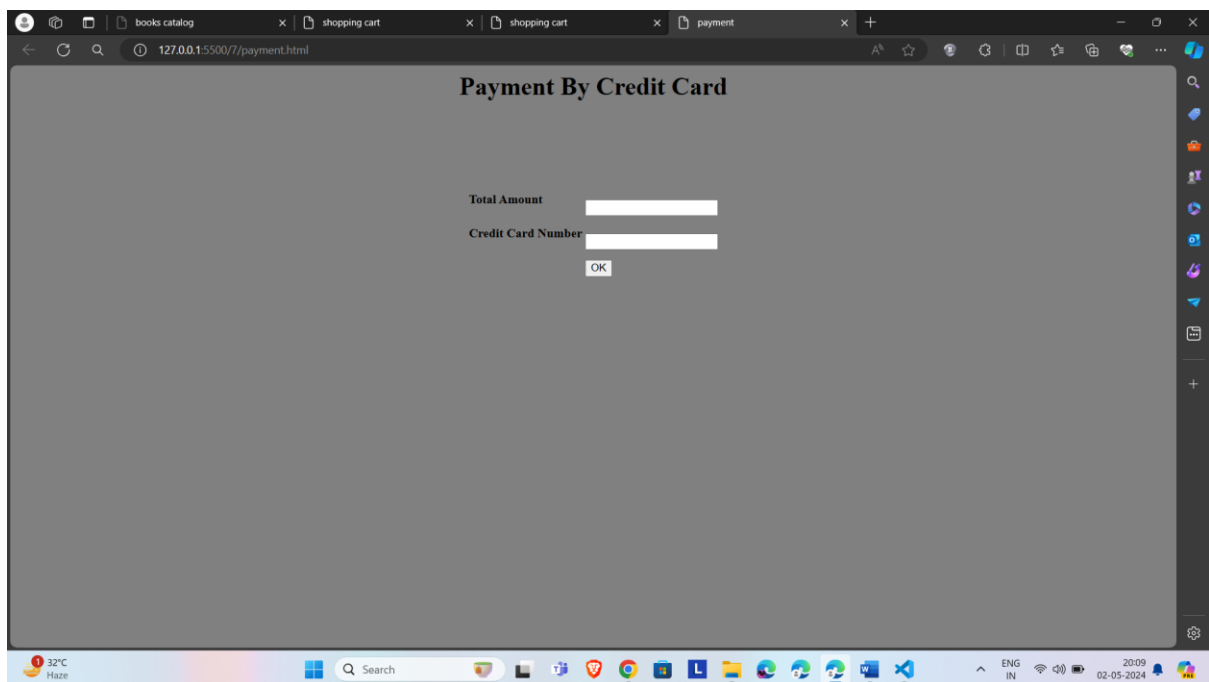
OUTPUT :

```
<html>

    <head>
```

```html
      <title>order conformation</title>
      <M /head>

<body bgcolor="lightgreen">
    <center>
        <h1><b>BOOK SHOPPING</h1>
        <pre><strong>
<b>Your order Is Conformed
</strong></pre>
        <h2><b>THANK YOU</h2>
    </center>
</body>

</html>
```

OUTPUT :