

EXPERIMENT - 1

AIM: Implement the data link layer framing methods such as character, character stuffing and bit Stuffing

DESCRIPTION: Data link layer provide service to network layer and use service provided by the physical layer. The bit stuffing is one of the framing techniques. Data link layer is responsible for something called Framing, because in this layer the data is represented in the form of frames. Which is the division of stream of bits from network layer into manageable units (called frames). Each frame consists of sender's address and a destination address. The destination address defines where the packet is to go and the sender's address helps the recipient acknowledge the receipt.

Frames could be of fixed size or variable size. In fixed-size framing, there is no need for defining the boundaries of the frames as the size itself can be used to define the end of the frame and the beginning of the next frame. But, in variable-size framing, we need a way to define the end of the frame and the beginning of the next frame.

To separate one frame from the next, an 8-bit (or 1-byte) flag is added at the beginning and the end of a frame. But the problem with that is, any pattern used for the flag could also be part of the information. So, there are two ways to overcome this problem

1. Using Bit Stuffing
2. Using Byte stuffing (or character stuffing)

Program 1: To write a c program for Bit Stuffing

Bit Stuffing: Bit stuffing is the process of inserting some extra bits into original data to break up bit patterns to affect the synchronous transmission of information. For example, whenever the sender's data link layer encounters five consecutive 1's in the data, it automatically stuffs a 0 bit into the outgoing stream.

Original data = 111111111101

After stuffing the data = 1111101111101101

At receiver's side, the receiver's data link layer apply **de-stuffing**, means when the receiver sees five consecutive incoming 1 bit's followed by a 0 bit, then it automatically remove the 0 bit. This process is continued until to check the entire input data to get the original data.

After de-stuffing the data = 111111111101.

Ans:

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
int a[20],b[30],i,j,k,count,n;
//clrscr();
system("cls");
printf("Enter frame length:");
scanf("%d",&n);
printf("Enter input frame (0's & 1's only):");
for(i=0;i<n;i++)
{
scanf("%d",&a[i]);
}
for(i=0;i<n;i++)
{
printf("the data word is %d ",a[i]);
}
i=0; count=1; j=0;
while(i<n)
{
if(a[i]==1)
{
b[j]=a[i];
for(k=i+1;a[k]==1 && k<n && count<5;k++)
{
j++;
b[j]=a[k];
count++;
if(count==5)
{
j++;
b[j]=0;
count=1;
}
i=k;
}
}
else
{
b[j]=a[i];
}
i++;
j++;
}
printf("After stuffing the frame is:");
for(i=0;i<j;i++)
printf("%d",b[i]);
getch();
}
```

OUTPUT:

Enter frame length: 10

Enter input frame (0's & 1's only):

1 0 1 0 1 1 1 1 1

After stuffing the frame is:

1 0 1 0 1 1 1 1 0 1

Program-2: To write a c program to implement character stuffing.

Character Stuffing: Character Stuffing is one of the data link layer framing method. It is used in Asynchronous data transmission. In this each frame has starting and ending delimiters. In the past, the starting and ending delimiters were different, but in recent years most protocols have used the same delimiters, called Flag Byte. In character stuffing our original data is transmitted with ASCII Character Sequence i.e. DLESTX (Data Link Escape Start of Text) and we can add some extra characters to the original string at a given position and this extra character is enclosed with special flag i.e called DLE, At the receiving side these stuffed characters are removed and the original data is recovered back.

PROGRAM FOR CHARACTER STUFFING

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
#include<process.h>
void main()
{
int i=0,j=0,n,pos;
char a[20],b[50],ch;
//clrscr();
system("cls");
printf("enter string\n");
scanf("%s",&a);
n=strlen(a);
printf("Enter stuffing character position \n");
scanf("%d",&pos);
up:
if(pos>n)
{
printf("invalid position, Enter position again :");
```

```
goto up;
}
printf("Enter the stuffing character\n");
ch=getche();

b[0]='d';
b[1]='l';
b[2]='e';
b[3]='s';
b[4]='t';
b[5]='x';
j=6;
while(i<n)
{
if(i==pos-1)
{
b[j]='d';
b[j+1]='l';
b[j+2]='e';
b[j+3]=ch;
b[j+4]='d';
b[j+5]='l';
b[j+6]='e';
j=j+7;
}
b[j]=a[i];
i++;
j++;
}
b[j]='d';
b[j+1]='l';
b[j+2]='e';
b[j+3]='e';
b[j+4]='t';
b[j+5]='x';
b[j+6]='\0';
printf("\nframe after stuffing:\n");
printf("%s",b);
getch();
}
```

INPUT:

enter string:

ramarao

Enter stuffing character position: 8

invalid position. Enter position again: 13

invalid position. Enter position again: 3

Enter stuffing character: k

OUTPUT:

frame after stuffing:

dleste x ra dle k dle marao dleetx

EXPERIMENT- 2

AIM: Implement on a data set of characters the three CRC polynomials – CRC 12, CRC 16 and CRC CCIP.

DESCRIPTION: The **Cyclic Redundancy Check** is a method for detect the errors, in which **Data word** (Original data) size is M-bits, generator size is r bits and the **Code word** (Encrypted data) size is [M+r-1] bits. In this method we apply the binary division (Modulo-2 or X-OR) operation to the data word and get the code word , here **generator** is divisor and **data word** is dividend after adding (r-1) zeros at right side of the given data word, Here before conduct the division operation we need to add (r-1) zero's right side of the data word then the data word size is [M+r-1] bits. In this method, after each step of the division operation first we observe the left side first bit of the remainder is always zero. So simply ignore it and next we observe the second bit of the remainder. If it is 1 then we take given generator as divisor for the next division operation otherwise take zero's (000.....) as divisor based on generator size. This process is continuing until we get (r-1) remainder i.e called CRC. This (r-1) remainder is replaced with (r-1) zero's in data word, then we will get code word. Now the sender is transmitted this codeword to the receiver.

Ex:-

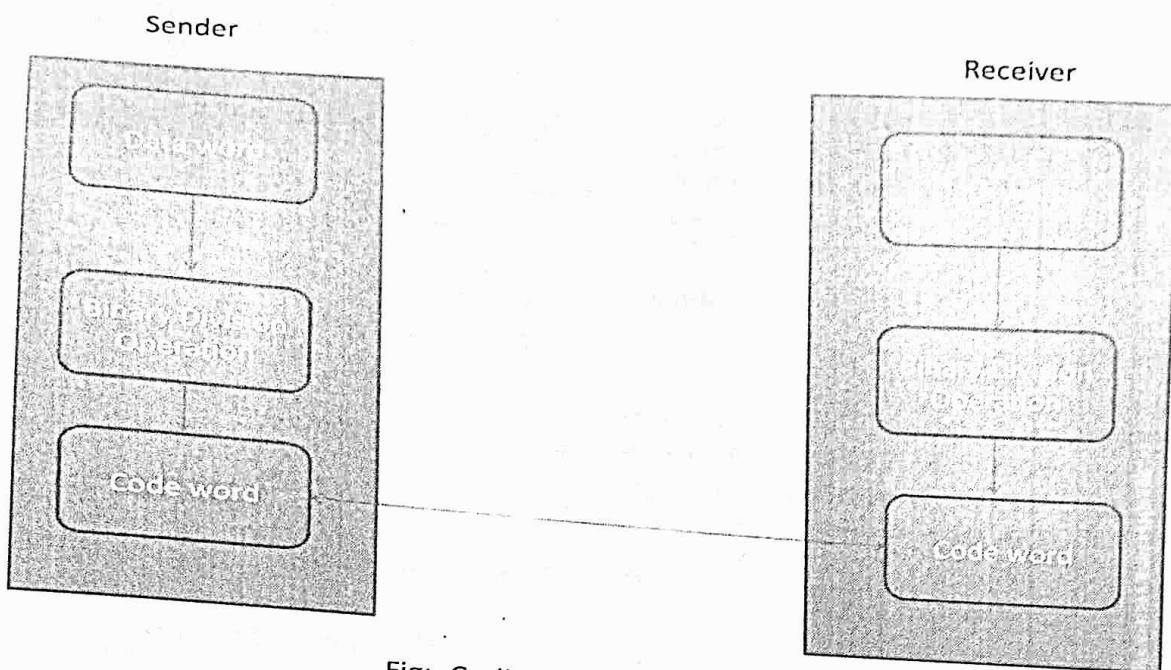


Fig:- Cyclic Redundancy Check

At receiver side, After receiving this codeword the Receiver again conduct the binary division operation with same generator, here the binary division operation is also same until to get the final $(r-1)$ remainder after ignore the left side first bit. If the final $(r-1)$ remainder bits, all are zeros, then the codeword is accepted otherwise the code word is rejected. After accepting this codeword, the receiver removing $(r-1)$ CRC from codeword, then he will get the data word.

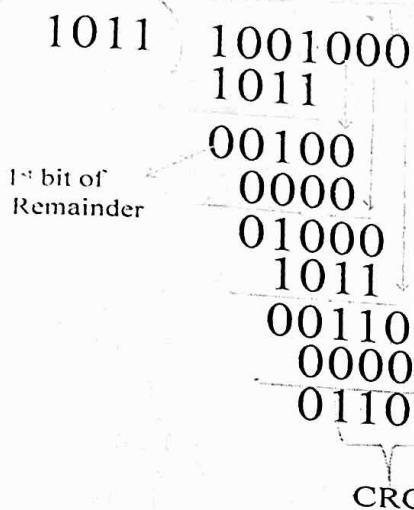
Ex:-

Data word size (M-bits)=1001

Generator size (r-bits) =1011

Dividend length (M+ $(r-1)$)=1001000

(r-1) Zeros



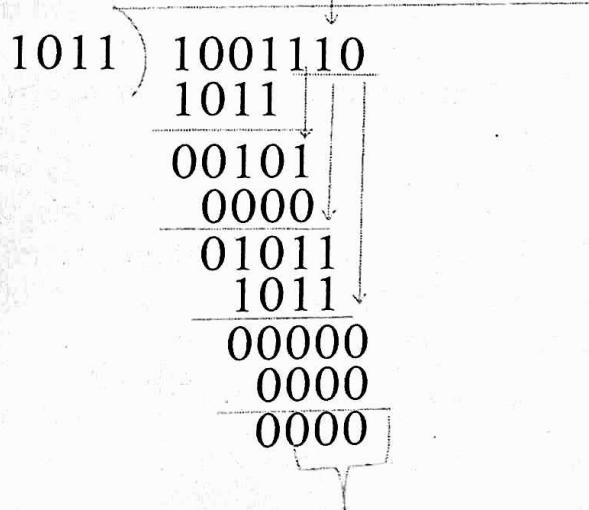
Replace (r-1) zeros with CRC
Then we will get the Code Word

Code word=1001110

Note: Ignore 1st bit in every step of remainder and observe 2nd bit. If it is zero, take zeros as divisor based on generator size otherwise given generator is act as a divisor

Fig:-Binary Division Operation at Sender side

(r-1) CRC bits



In final r-1 Remainder bits all are zeros,

So data is accepted.

Fig:-Binary Division Operation at Receiver side

In (r-1) CRC bits, one bit is corrupted at
Transmission time

1011	1001100
	1011
	00101
	0000
	01010
	1011
	00010
	0000
	0010

In final r-1 Remainder bits, some of the bits are non-zeros,
So data is Rejected

Fig:-Binary Division Operation at Receiver side, If we can Assume error is occur in data

PROGRAM FOR CYCLIC REDUNDENCY CHECK

```
#include<stdio.h>
#include<conio.h>
int gen[4],genl,frl,rem[4];
void remainder(int[]);
void main()
{
    int i,j,fr[8],dupfr[11],recfr[11],tlen,flag;
    //clrscr();
    system("cls");
    frl=8; genl=4;
    printf("enter frame bits:");
    for(i=0;i<frl;i++)
    {
        scanf("%d",&fr[i]);
        dupfr[i]=fr[i];
    }
    printf("enter generator:");
    for(i=0;i<genl;i++)
    scanf("%d",&gen[i]);
    tlen=frl+genl-1;
    for(i=frl;i<tlen;i++)
    {
        dupfr[i]=0;
    }
    remainder(dupfr);
    for(i=0;i<frl;i++)
}
```

```
{  
    recfr[i]=fr[i];  
}  
for(i=frl,j=1;j<genl;i++,j++)  
{  
    recfr[i]=rem[j];  
}  
remainder(recfr);  
    flag=0;  
    for(i=0;i<4;i++)  
    {  
        if(rem[i]!=0)  
            flag++;  
    }  
    if(flag==0)  
    {  
        printf("frame received correctly");  
    }  
    else  
    {  
        printf("the received frame is wrong");  
    }  
}
```

```
getch();  
}
```

```
void remainder(int fr[]){  
    int k,k1,i,j;  
    for(k=0;k<frl;k++)  
    {  
        if(fr[k]==1)  
        {  
            k1=k;  
            for(i=0,j=k;i<genl;i++,j++)  
            {  
                rem[i]=fr[j]^gen[i];  
            }  
        }  
    }  
}
```

```
for(i=0;i<genl;i++)  
{  
    fr[k1]=rem[i];  
    k1++;  
}  
}
```

```
}  
INPUT:
```

```
enter frame :  
1 1 1 1 1 1 1
```

```
enter generator :  
1 1 0 1
```

OUTPUT:
frame received correctly

EXPERIMENT- 3

Name of the experiment: Develop a simple data link layer that performs the flow control using the sliding window protocol, and loss recovery using the Go-Back-N- mechanism.

Below is the simulation of sliding window protocol in C.
`#include<stdio.h>`

```
int main()
{
    int w,i,f,frames[50];

    printf("Enter window size: ");
    scanf("%d",&w);

    printf("\nEnter number of frames to transmit: ");
    scanf("%d",&f);

    printf("\nEnter %d frames: ",f);

    for(i=1;i<=f;i++)
        scanf("%d",&frames[i]);

    printf("\nWith sliding window protocol the frames will be sent in the
following manner (assuming no corruption of frames)\n\n");
    printf("After sending %d frames at each stage sender waits for
acknowledgement sent by the receiver\n\n",w);

    for(i=1;i<=f;i++)
    {
        if(i%w==0)
        {
            printf("%d\n",frames[i]);
            printf("Acknowledgement of above frames sent is received by
sender\n\n");
        }
        else
            printf("%d ",frames[i]);
    }

    if(f%w!=0)
        printf("\nAcknowledgement of above frames sent is received by
sender\n");
}
```

```
    return 0;  
}
```

Output

```
Enter window size: 3  
Enter number of frames to transmit: 5  
Enter 5 frames: 12 5 89 4 6  
With sliding window protocol the frames will be sent in the following manner (assuming no  
corruption of frames)  
After sending 3 frames at each stage sender waits for acknowledgement sent by the receiver  
12 5 89  
Acknowledgement of above frames sent is received by sender  
4 6  
Acknowledgement of above frames sent is received by sender
```

Go Back N protocol in c

```
#include<stdio.h>  
int main()  
{  
    int windowsize,sent=0,ack,i;  
    printf("enter window size\n");  
    scanf("%d",&windowsize);  
    while(1)  
    {  
        for( i = 0; i < windowsize; i++)  
        {  
            printf("Frame %d has been transmitted.\n",sent);  
            sent++;  
            if(sent == windowsize)  
                break;  
        }  
        printf("\nPlease enter the last Acknowledgement  
received.\n");  
        scanf("%d",&ack);  
  
        if(ack == windowsize)  
            break;  
        else  
            sent = ack;  
    }  
    return 0;  
}
```

Output:

```
enter window size  
Frame 0 has been transmitted.  
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.  
Frame 6 has been transmitted.  
Frame 7 has been transmitted.
```

Please enter the last Acknowledgement received.

2

Frame 2 has been transmitted.

Frame 3 has been transmitted.

Frame 4 has been transmitted.

Frame 5 has been transmitted.

Frame 6 has been transmitted.

Frame 7 has been transmitted.

Please enter the last Acknowledgement received.

8

EXPERIMENT - 4

Name of the Experiment: Implementation on Dijkstra's algorithm.

AIM: Implement Dijkstra's algorithm to compute the shortest path through a network.

DESCRIPTION: This program is used for finding the shortest path between nodes. Path is found based on the cost of the path existing between the nodes. Among different paths it selects the minimum path between source and destination.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int path[5][5],i,j,min,a[5][5],p,st=1,ed=5,stp,edp,t[5],index;
    //clrscr();
    system("cls");
    printf("enter the cost matrix\n");
    for(i=1;i<=5;i++)
        for(j=1;j<=5;j++)
            scanf("%d",&a[i][j]);
    printf("enter the paths\n");
    scanf("%d",&p);
    printf("enter possible paths\n");
    for(i=1;i<=p;i++)
        for(j=1;j<=5;j++)
            scanf("%d",&path[i][j]);
    for(i=1;i<=p;i++)
    {
        t[i]=0;
        stp=st;
        for(j=1;j<=5;j++)
        {
            edp=path[i][j+1];
            t[i]=t[i]+a[stp][edp];
            if(edp==ed)
                break;
            else
                stp=edp;
        }
    }
    min=t[st];index=st;
    for(i=1;i<=p;i++)
    {
        if(min>t[i])
        {
            min=t[i];
            index=i;
        }
    }
}
```

```
}
printf("minimum cost %d",min);
printf("\n minimumi cost path ");
for(i=1;i<=5;i++)
{
printf("--> %d",path[index][i]);
if(path[index][i]==ed)
break;
}
getch();
}
```

OUTPUT:

1

4 2 2 3

3 5

enter the cost matrix :

0 1 4 2 0
0 0 0 2 3
0 0 0 3 0
0 0 0 0 5
0 0 0 0 0

enter number of paths : 4

enter the paths :

1 2 4 5 0
1 2 5 0 0
1 4 5 0 0
1 3 4 5 0

minimum cost : 4

minimum cost path :

1 ? 2 ? 5

EXPERIMENT- 5

Name of the Experiment: Implementation on broadcast tree.

AIM: Take an example subnet of hosts. Obtain broadcast tree for it.

DESCRIPTION: This program is used for finding the shortest between the source and destination. The shortest path is selected based on the number of hops existing between the nodes. The program displays the path to the other region and hops required for that going to that region.

program:1 To implement broadcast tree

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
void main()
{
int i,j,n,radius=5,temp[5];
int s[10];
int link[10][10];
int l[5][2]={{150,200},{200,150},{200,200},{200,250},{250,200}};
int gdriver = DETECT, gmode, errorcode;
clrscr();
printf("Enter no of nodes:\n");
scanf("%d",&n);
for(i=0;i<n;i++)
{
for(j=0;j<n;j++)
{
printf("%d-->%d:",i,j);
scanf("%d",&link[i][j]);
}
}
initgraph(&gdriver, &gmode, "");
printf("\n\n\n\n\n\n\t\tSUBNET\t\tCORRESPONDING TREE\n");
printf("\t\t-----\t\t-----\n");
for(i=0;i<n;i++)
circle(l[i][0],l[i][1],radius);
for(i=0;i<n;i++)
for(j=0;j<n;j++)
if(link[i][j]==1)
line(l[i][0],l[i][1],l[j][0],l[j][1]);
for(i=0;i<n;i++)
circle(l[i][0]+250,l[i][1],radius);
for(i=n-1;i>=0;i--)
for(j=n-1;j>=0;j--)
if(link[i][j]==1&&temp[i]!=1)
{
line(l[i][0]+250,l[i][1],l[j][0]+250,l[j][1]);
temp[i]=1;
}
getch();
```

program: To implement broadcast tree

```
#include<stdio.h>
#include<conio.h>
struct full /*declaration of structure full */
{
    char line[10], dest[10]; int hops;
}f[20];
void main()
{
    int nv, min, minver, i;
    char sv[2], temp;
    //clrscr();
    system("cls");
    printf("enter no. of vertices"); /* reading vertices */
    scanf("%d", &nv);
    printf("enter source vertex"); /* reading source vertex */
    scanf("%s", sv);
    printf("enter full table for source vertex %s", sv); /* reading distances */
    /*
    for(i=0;i<nv;i++)
        scanf("%s%s%d", f[i].dest, f[i].line, &f[i].hops);
    printf("\n HIERARCHICAL TABLE\n");
    for(i=0;i<nv;)
    {
        if(sv[0]==f[i].dest[0])
        {
            printf("\n%s%s%d", f[i].dest, f[i].line, f[i].hops);
            i++;
        }
        else
        {
            min=1000;
            minver=0;
            while(temp==f[i].dest[0]) /* calculating the minimum distances */
            {
                if(min>f[i].hops)
                {
                    min=f[i].hops;
                    minver=i;
                }
                i++;
            }
            printf("\n%c%s%d", temp, f[minver].line, f[minver].hops);
        }
    }
    getch();
}
```

OUTPUT:
1) Enter no. of vertices 17 Enter source vertex 1a
Enter full table for source vertex 1a

1a	0	0
1b	1b	1
1c	1c	1
1c	1c	2
2a	1c	3
2b	1c	4
2c	1c	3
2d	1c	3
3a	1c	2
3b	1c	3
4a	1c	4
4b	1c	5
4c	1c	5
5a	1c	5
5b	1c	5
5c	1c	4
5d	1c	5
5e	1c	6

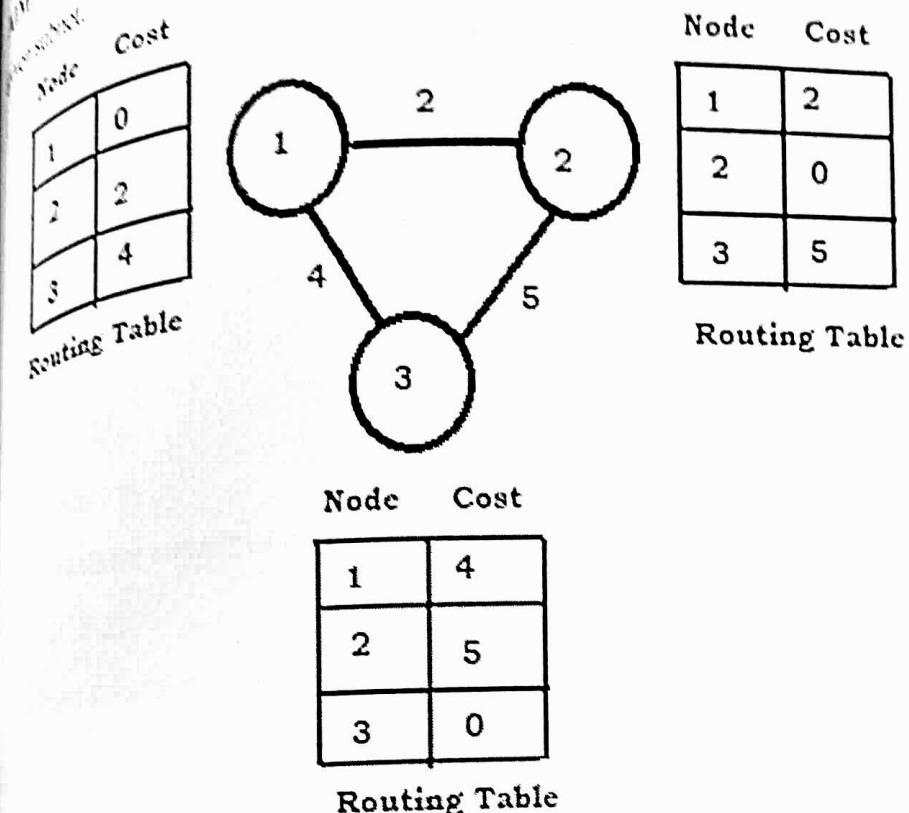
HIERARCHICAL TABLE

1a	0	0
1b	1b	1
1c	1c	1
2	1c	2
3	1c	2
4	1c	4
5	1c	5

CONCLUSION: hence the program is error free

EXPERIMENT NO: 6

AIM OF THE EXPERIMENT: Distance Vector routing.



HARDWARE REQUIREMENTS: Intel based Desktop PC:- RAM of 512 MB

SOFTWARE REQUIREMENTS: Turbo C / Borland C.

THEORY:

Distance Vector Routing Algorithms calculate a best route to reach a destination based solely on distance. E.g. RIP. RIP calculates the reachability based on hop count. It's different from link state algorithms which consider some other factors like bandwidth and other metrics to reach a destination.

Distance vector routing algorithms are not preferable for complex networks and take longer to converge.

SOURCE CODE:

```
#include<stdio.h>
struct node
{
    unsigned dist[20];
    unsigned from[20];
}rt[10];
int main()
{
    int dmat[20][20];
    int n,i,j,k,count=0;
    printf("\nEnter the number of nodes : ");
    scanf("%d",&n);
    printf("Enter the cost matrix :\n");
    for(i=0;i<n;i++)
        for(j=0;j<n;j++)
    {
        scanf("%d",&dmat[i][j]);
        dmat[i][i]=0;
        rt[i].dist[j]=dmat[i][j];
        rt[i].from[j]=j;
    }
    do
    {
        count=0;
        for(i=0;i<n;i++)
            for(j=0;j<n;j++)
```

```
for(k=0;k<n;k++)
    rt[i].dist[j] = dmat[i][k] + rt[k].dist[j];

    rt[i].dist[j] = rt[i].dist[k] + rt[k].dist[j];
    rt[i].from[j] = k;
    count++;

while(count!=0);
for(i=0;i<n;i++)
{
    printf("\nState value for router %d is \n",i+1);
    for(j=0;j<n;j++)
    {
        printf("\nnode %d via %d Distance%d",j+1,rt[i].from[j]+1,rt[i].dist[j]);
    }
}
printf("\n");
}
```

OUTPUT:

Enter the number of nodes : 2

Enter the cost matrix :1 2

1 2

State value for router 1 is

node 1 via 1 Distance0

node 2 via 2 Distance2

State value for router 2 is

node 1 via 1 Distance1

node 2 via 2 Distance0

VIVA QUESTIONS:

EXPERIMENT- 7

Using RSA algorithm encrypt a text data and Decrypt the same/

```
#include<stdio.h>
#include<conio.h>
#include<ctype.h>
#include<math.h>
#include<string.h>

void main()
{
    int a,b,i,j,t,x,n,k=0,flag=0,prime[100];
    char m[20],pp[20];
    float p[20],c[20];double e,d;
    //clrscr();
    system("cls");
    for(i=0;i<50;i++)
    {
        flag=0;
        for(j=2;j<i/2;j++)
        if(i%j==0)
        {
            flag=1;
            break;
        }
        if(flag==0)
        prime[k++]=i;
    }
    a=prime[k-1];
    b=prime[k-2];
    n=a*b;
```

```
t=(a-1)*(b-1);
e=(double)prime[2];
d=1/(float)e;
printf("\nKey of encryption is:%lf\n",d);
printf("\nEnter plain the text:");
scanf("%s",&m);
x=strlen(m);
printf("\nDecryption status From Source to Destination:\n");
printf("\nSource\t>-----<-destination\n");
printf("\nChar\tnumeric\tcipher\tnumeric\tchar \n");
printf("\n*****\n");
printf("\n");
for(i=0;i<x;i++)
{
    printf("%c",m[i]);
    printf("\t%d",m[i]-97);
    c[i]=pow(m[i]-97,(float)e);
    c[i]=fmod(c[i],(float)n);
    printf("\t%f",c[i]);
    p[i]=pow(c[i],(float)d);
    p[i]=fmod(p[i],(float)n);
    printf("\t%f",p[i]);
    pp[i]=p[i]+97;
    printf("\t%c\n",pp[i]);
    printf("\n*****\n");
    printf("\n");
}
getch();
}
```

OUTPUT:

Key of encryption is: 0.500000

Enter plain the text: rani

Decryption status From Source to Destination:

Source ----->----- destination

Char numeric cipher numeric char

r 17 289.000000 17.000000 r

a 0 0.0000000 0.000000 a

n 13 169.000000 13.000000 n

i 8 64.0000000 8.000000 i



EXPERIMENT- 8

Write a program for congestion control using leaky bucket algorithm.

The congesting control algorithms are basically divided into two groups: open loop and closed loop. Open loop solutions attempt to solve the problem by good design, in essence, to make sure it does not occur in the first place. Once the system is up and running, midcourse corrections are not made. Open loop algorithms are further divided into ones that act at source versus ones that act at the destination.

In contrast, closed loop solutions are based on the concept of a feedback loop if there is any congestion. Closed loop algorithms are also divided into two sub categories: explicit feedback and implicit feedback. In explicit feedback algorithms, packets are sent back from the point of congestion to warn the source. In implicit algorithm, the source deduces the existence of congestion by making local observation, such as the time needed for acknowledgment to come back.

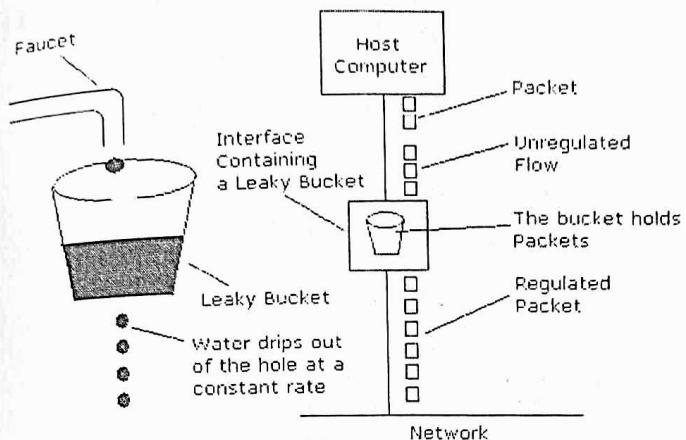
The presence of congestion means that the load is (temporarily) greater than the resources (in part of the system) can handle. For subnets that use virtual circuits internally, these methods can be used at the network layer.

Another open loop method to help manage congestion is forcing the packet to be transmitted at a more predictable rate. This approach to congestion management is widely used in ATM networks and is called traffic shaping.

The other method is the leaky bucket algorithm. Each host is connected to the network by an interface containing a leaky bucket, that is, a finite internal queue. If a packet arrives at the queue when it is full, the packet is discarded. In other words, if one or more process are already queued, the new

packet is unceremoniously discarded. This arrangement can be built into the hardware interface or simulated by the host operating system. In fact it is nothing other than a single server queuing system with constant service time.

The host is allowed to put one packet per clock tick onto the network. This mechanism turns an uneven flow of packet from the user process inside the host into an even flow of packet onto the network, smoothing out bursts and greatly reducing the chances of congestion.



Program:

```

import java.util.*;
public class leakybucketalgorithm
{
    public static void main(String[] args)
    {
        Scanner my = new Scanner(System.in);
        int no_groups,bucket_size;
        System.out.print("\n Enter the bucket size : \t");
        bucket_size = my.nextInt();
        System.out.print("\n Enter the no of groups : \t");
        no_groups = my.nextInt();
        int no_packets[] = new int[no_groups];
        int in_bw[] = new int[no_groups];
    }
}

```

```

DEPARTMENT OF COMPUTER SCIENCE
DEPARTMENT OF COMPUTER SCIENCE
reqd_bw=0,tot_packets=0;
for(int i=0;i<no_groups;i++)
{
    System.out.print("\n Enter the no of packets for group " + (i+1) + "\t");
    no_packets[i] = my.nextInt();
    System.out.print("\n Enter the input bandwidth for the group " + (i+1) + "\t");
    in_bw[i] = my.nextInt();
    if((tot_packets+no_packets[i])<=bucket_size)
    {
        tot_packets += no_packets[i];
    }
    else
    {
        do
        {
            System.out.println(" Bucket Overflow ");
            System.out.println(" Enter value less than " + (bucket_size-tot_packets));
            no_packets[i] = my.nextInt();
        }while((tot_packets+no_packets[i])>bucket_size);
        tot_packets += no_packets[i];
    }
    reqd_bw += (no_packets[i]*in_bw[i]);
}
System.out.println("\nThe total required bandwidth is " + reqd_bw);
System.out.println("Enter the output bandwidth ");
out_bw = my.nextInt(); int temp=reqd_bw;
int rem_pkts = tot_packets;
while((out_bw<=temp)&&(rem_pkts>0))
{
    System.out.println("Data Sent \n" + (--rem_pkts) + " packets remaining");
    System.out.println("Remaining Bandwidth " + (temp -= out_bw));
    if((out_bw>temp)&&(rem_pkts>0))
}

```

```
System.out.println("rem_pkts + " packet(s) discarded due to insufficient bandwidth");
```

OUTPUT:-

Enter the bucket size :10

Enter the no of groups: 2

Enter the no of packets for group 1 3

Enter the input bandwidth for the group 1 4

Enter the no of packets for group 2 4

Enter the input bandwidth for the group 2 3

The total required bandwidth is 24

Enter the output bandwidth

6

Data Sent

6 packets remaining

Remaining Bandwidth 18]

Data Sent

5 packets remaining

Remaining Bandwidth 12

Data Sent

4 packets remaining

Remaining Bandwidth 6

Data Sent

3 packets remaining

Remaining Bandwidth 0

3 packet(s) discarded due to insufficient bandwidth

BUILD SUCCESSFUL (total time: 43 seconds)

EXPERIMENT - 9

Write a program for frame sorting technique used in buffers.

```
#include<stdio.h>
#include<string.h>
#define FRAM_TXT_SIZ 3
#define MAX_NOF_FRAM 127
char str[FRAM_TXT_SIZ*MAX_NOF_FRAM];
struct frame // structure maintained to hold frames
{
    char text[FRAM_TXT_SIZ];
    int seq_no;
}fr[MAX_NOF_FRAM], shuf_ary[MAX_NOF_FRAM];
int assign_seq_no() //function which splits message
{
    int k=0,i,j; //into frames and assigns sequence no
    for(i=0; i < strlen(str); k++)
    {
        fr[k].seq_no = k;
        for(j=0; j < FRAM_TXT_SIZ && str[i]!='\0'; j++)
            fr[k].text[j] = str[i++];
    }
    printf("\nAfter assigning sequence numbers:\n");
    for(i=0; i < k; i++)
        printf("%d:%s ",i,fr[i].text);
    return k; //k gives no of frames
}
void generate(int *random_ary, const int limit) //generate array of random nos
{
    int r, i=0, j;
    while(i < limit)
    {
        r = rand() % limit;
        for(j=0; j < i; j++)
            if( random_ary[j] == r )
                break;
```

```

    if(i==j) random_ary[i+1] = r;
}

void shuffle( const int no_frames ) // function shuffles the frames
{
    int i, k=0, random_ary[no_frames];
    generate(random_ary, no_frames);
    for(i=0; i < no_frames; i++)
        shuf_ary[i] = fr[random_ary[i]];
    printf("\n\n AFTER SHUFFLING:\n");
    for(i=0; i < no_frames; i++)
        printf("%d:%s ",shuf_ary[i].seq_no,shuf_ary[i].text);
}

void sort(const int no_frames) // sorts the frames
{
    int i,j,flag=1;
    struct frame hold;
    for(i=0; i < no_frames-1 && flag==1; i++) // search for frames in sequence
    {
        flag=0;
        for(j=0; j < no_frames-1-i; j++) // (based on seq no.) and display
            if(shuf_ary[j].seq_no > shuf_ary[j+1].seq_no)
            {
                hold = shuf_ary[j];
                shuf_ary[j] = shuf_ary[j+1];
                shuf_ary[j+1] = hold;
                flag=1;
            }
    }
}

int main()
{
    int no_frames,i;
}

```

```
printf("Enter the message: ");
gets(str);
no_frames = assign_seq_no();
shuffle(no_frames);
sort(no_frames);
printf("\n\nAFTER SORTING\n");
for(i=0;i<no_frames;i++)
printf("%s",shuf_ary[i].text);
printf("\n\n");
}
```

Output:

Enter the message: stmarys

After assigning sequence numbers:

0: stm 1:ary 2:s

AFTER SHUFFLING|:

2:s 1:ary 0:stm

AFTER SORTING

stmarys

WEB TECHNOLOGIES EXPERIMENTS

EXPERIMENT- 1

1. Write a PHP script to print prime numbers between 1-50.

prime.php (1-50)

```
<?php

$count = 0 ;

$number = 2 ;

while ($count < 20 )

{

$div_count=0;

for ( $i=1;$i<=$number;$i++)

{

if ((($number%$i)==0)

{

$div_count++;


```

```
}  
}  
  
if ($div_count<3)  
{  
  
echo $number." , ";  
  
$count=$count+1;  
  
}  
  
$number=$number+1;  
  
}  
  
?>
```

Output:

2 , 3 , 5 , 7 , 11 , 13 , 17 , 19 , 23 , 29 , 31 , 37 , 41 , 43 , 47

EXPERIMENT - 2

a) PHP script to

i. Find the length of a string

```
2.1) strlen.php
<!DOCTYPE html>
<html>
<body>
<?php
echo strlen("Hello");
?>
</body>
</html>
```

Output:

5

ii. Count no of words in a string

```
2.2) countwords.php
<!DOCTYPE html>
<html>
<body>
<?php
echo str_word_count("Hello world");
?>
</body>
</html>
```

Output:

2

EXPERIMENT - 2

PHP script to

find the length of a string

```
<?php
    $str = "Hello";
    echo strlen($str);
?>
```

Output:
5

b. Count no of words in a string

```
<?php
    $str = "Hello world!";
    $words = explode(" ", $str);
    echo count($words);
?>
```

Output:
2

c. Reverse a string

```
2.c)Revstring.php
<!DOCTYPE html>
<html>
<body>
<?php
echo strrev("Hello World!");
?>
</body>
</html>
```

Output:

!dlroW olleH

d. Search for a specific string

```
2.d)specstring.php
<!DOCTYPE html>
<html>
<body>
<?php
echo strrchr("Hello world!","world");
?>
</body>
</html>
```

Output:

world!

EXPERIMENT- 3

Write a PHP script to merge two arrays and sort them as numbers, in descending order.

merge.php

```
?php  
$a1=array(1,3,15,7,5);  
$a2=array(4,3,20,1,6);  
$num=array_merge($a1,$a2);  
array_multisort($num,SORT_DESC,SORT_NUMERIC);  
print_r($num);
```

>

Output:
Array ([0] => 20 [1] => 15 [2] => 7 [3] => 6 [4] => 5 [5] => 4 [6] => 3 [7] => 3 [8] => 1 [9] => 1)

Web Technologies Experiments

1. Write a PHP script to print prime numbers between 1-50.
2. PHP script to a. Find the length of a string. b. Count no of words in a string. c. Reverse a string. d. Search for a specific string. R18 B.TECH CSE III YEAR
3. Write a PHP script to merge two arrays and sort them as numbers, in descending order.
4. Write a PHP script that reads data from one file and write into another file.
5. Develop static pages (using Only HTML) of an online book store. The pages should resemble: www.amazon.com. The website should consist the following pages. a) Home page b) Registration and user Login c) User Profile Page d) Books catalog e) Shopping Cart f) Payment By credit card g) Order Conformation
6. Validate the Registration, user login, user profile and payment by credit card pages using JavaScript.
7. Create and save an XML document on the server, which contains 10 users information. Write a program, which takes User Id as an input and returns the user details by taking the user information from the XML document.
8. Install TOMCAT web server. Convert the static web pages of assignments 2 into dynamic web pages using servlets and cookies. Hint: Users information (user id, password, credit card number) would be stored in web.xml. Each user should have a separate Shopping Cart.
9. Redo the previous task using JSP by converting the static web pages of assignments 2 into dynamic web pages. Create a database with user information and books information. The books catalogue should be dynamically loaded from the database. Follow the MVC architecture while doing the website.
TEXT BOOKS: 1. WEB TECHNOLOGIES: A Computer Science Perspective, Jeffrey C. Jackson, Pearson Education
REFERENCES: 1. Deitel H.M. and Deitel P.J., “Internet and World Wide Web How to program”, Pearson International, 2012,

4th Edition. 2. J2EE: The complete Reference By James Keogh, McGraw-Hill 3. Bai and Ekedhi, The Web Warrior Guide to Web Programming, Thomson 4. Paul Dietel and Harvey Deitel,” Java How to Program”, Prentice Hall of India, 8th Edition 5. Web technologies, Black Book, Dreamtech press. 6. Gopalan N.P. and Akilandeswari J., “Web Technology”, Prentice Hall of India

1. Write a PHP script to print prime numbers between 1-50

```
<?php  
  
$number = 2 ;  
  
while ($number < 50 )  
  
{  
  
$div_count=0;  
  
for ( $i=1;$i<=$number;$i++)  
  
{  
  
if (($number%$i)==0)  
  
{  
  
$div_count++;  
  
}  
  
}  
  
}
```

```
if ($div_count<3)

{
echo $number." , ";

}

$number=$number+1;

}

?>
```

Output:

2 , 3 , 5 , 7 , 11 , 13 , 17 , 19 , 23 , 29 , 31 , 37 , 41 , 43 , 47

2. PHP script to a. Find the length of a string

```
<!DOCTYPE html>

<html>

<body>

<?php
echo strlen("Hello");
?>
</body>
</html>
```

Output:5

2. PHP script tob. Count no of words in a string.

```
<!DOCTYPE html>

<html>
<body>
<?php
echo str_word_count("Hello world!");
?>
</body>
</html>
```

2. PHP script toc. Reverse a string

```
<?php
functionreverse_string($str1)
{
$n=strlen($str1);
if($n==1)
{
return$str1;
}
else
{
$n--;
returnreverse_string(substr($str1,1,$n)).substr($str1,0,1);
}
}
print_r(reverse_string('1234')."\n");
?>
```

Output:4321

2. PHP script tod. Search for a specific string. R18 B.TECH CSE III YEAR

```
<?php
$str1='Search for a specific string.';
if(strpos($str1,'jumps')!==false)
{
echo'R18 B.TECH CSE III YEAR .';
}
else
{
echo'R18 B.TECH CSE III YEAR .';
}
?>
```

OUTPUT:R18 B.TECH CSE III YEAR

3. Write a PHP script to merge two arrays and sort them as numbers, in descending order

```
<?php
$a1=array(1,3,15,7,5);
$a2=array(4,3,20,1,6);
$num=array_merge($a1,$a2);
array_multisort($num,SORT_DESC,SORT_NUMERIC);
print_r($num);
?>
```

```
Array
(
    [0] => 20
    [1] => 15
    [2] => 7
    [3] => 6
    [4] => 5
    [5] => 4
    [6] => 3
    [7] => 3
    [8] => 1
    [9] => 1
```

4. Write a PHP script that reads data from one file and write into another file.

```
<?php

$filename= 'On the Origin of Species [Charles Darwin].txt';
$book_content= file_get_contents($filename);

$book_content_lowercase= strtolower($book_content);

$individual_words= explode(' ', $book_content_lowercase);
echo "There are about ".count($individual_words)." words in the book:
".substr($filename, 0, -4).".\n";

$word_frequency= array_count_values($individual_words);
echo "Total number of unique words in the book are
".count($word_frequency).".\n";
echo "The word 'Elephant' occurs ".$word_frequency["elephant"]." times in the
book.\n";
echo "The word 'Ant' occurs ".$word_frequency["ant"]." times in the book.\n";

if(isset($word_frequency["evolution"])) {
    echo "The word 'Evolution' occurs ".$word_frequency["evolution"]." times in
the book.\n";
} else{
```

```
echo"The word 'Evolution' does not occur even once in the book.\n";
}

arsort($word_frequency);
echo"The most used word in the book is: ".$key($word_frequency).".\n";

/* Output of all the code above

There are about 147520 words in the book: On the Origin of Species [Charles
Darwin].
Total number of unique words in the book are 22758.
The word 'Elephant'occurs 3 times in the book.
The word 'Ant'occurs 6 times in the book.
The word 'Evolution'does not occur even once in the book.
The most used word in the book is: 'the'.
?>
```

5. Develop static pages (using Only HTML) of an online Book store. The pages should resemble: www.amazon.com The website should consist the following pages.

Home page,
Registration and user Login
User Profile Page,
Books catalog
Shopping Cart,
Payment By credit card
Order Conformation.

Click here to download source and application

[Home page](#)

Main.html:
<html>

```
<head>
<title>
Amazon</title>
</head>
<body bgcolor="cyan"><center>
<strong><h1>Welcome to AMAZON</h1></strong>
<form method="post" action="login.html" target=_blank >
<h4>for books</h4><input type="submit" value="click here">
</form>
</center>
</body>
</html>
```

Registration and user Login

Login.html:

```
<html>
<head>
<title>
login</title>
</head>
<body bgcolor="cyan"><center>
<strong><h1> AMAZON </h1></strong></center>
<right>
<table align="right">
<tr>
<td><h4>user name</h4>
<td><input type="text" ></td>
<td></td>
</tr>
<tr>
<td><h4>password</h4>
```

```
<td><input type="password"></td>
<td></td>
</tr>
<tr>
<td>
<form method="post" action="catalog.html" >
<input type="submit" value="submit" >
</form>
</td>
<td>
<form method="post" action="reg.html" >
<input type="submit" value="register" >
&nbsp;&nbsp;
<input type="reset" value="reset"></form></td>
</tr>
</table>
</body>
</html>
```

Registration page

reg.html:

```
<html>
<head>
<title>
login page</title>
</head>
<body bgcolor="cyan">
<center><strong><h1> AMAZON </h1></strong></center>
<form method="post" action="catalog.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 &nbsp;&nbsp;
<option >
<input type="radio" name="sex" id="male"></td>
<td><h4>female &nbsp; &nbsp;
<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>
<input type="reset" value="reset"></td>
</tr>
</form>
</body>
</html>
```

Userprofile

userprofile.html

```
<html>
<head>
<title>
userprofile</title>
</head>
<body bgcolor="cyan"><center>
<strong><h1>Welcome to AMAZON Online Book Store
</h1></strong></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>
</tr>
<tr>
<option >
<td><h4>male &nbsp;&nbsp;
<input type="radio" name="sex" id="male"></td>
<td><h4>female &nbsp; &nbsp;
<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>
</form>
</body>
</html>
```

Books catalog

Catalog.html:

```
<html>
<head>
<title>
books catalog</title>
</head>
<body bgcolor="cyan">
<center><h1>AMAZON</h1></center>
<form method="post" action="shopping.html">
<left>
<table>
<tr>
<td><b><h3>frontend books</h3></b></td>
<td></td></tr>
<tr>
<td></td>
<td><h4>C&Ds</h4></td>
</tr>
<tr>
```

```
<td></td>
<td><h4>Ads</td>
</tr>
<tr>
<td></td>
<td><h4>JAVA
</td></tr>
<tr>
<td><b><h3>backend books</h3></b></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>
</form>
</body>
</html>
```

Shopping cart

Shopping.html:

```
<html>
<head><title>shopping cart</title>
</head>
<body bgcolor="cyan">
<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>
```

Payment by credit card

Payment.html:

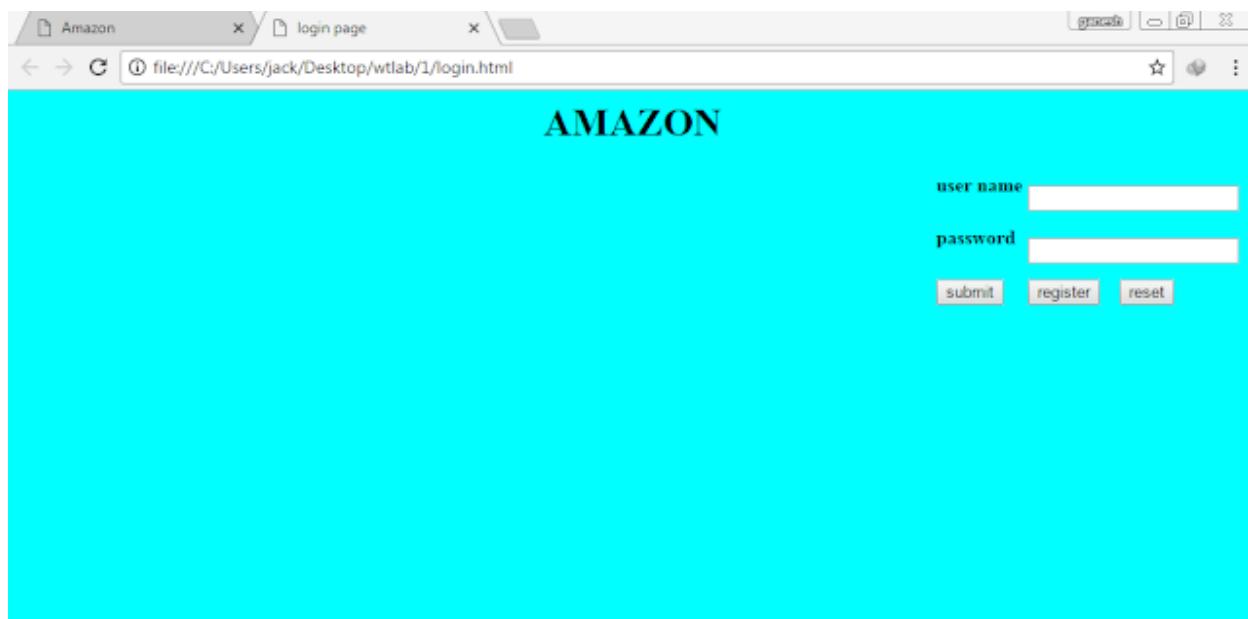
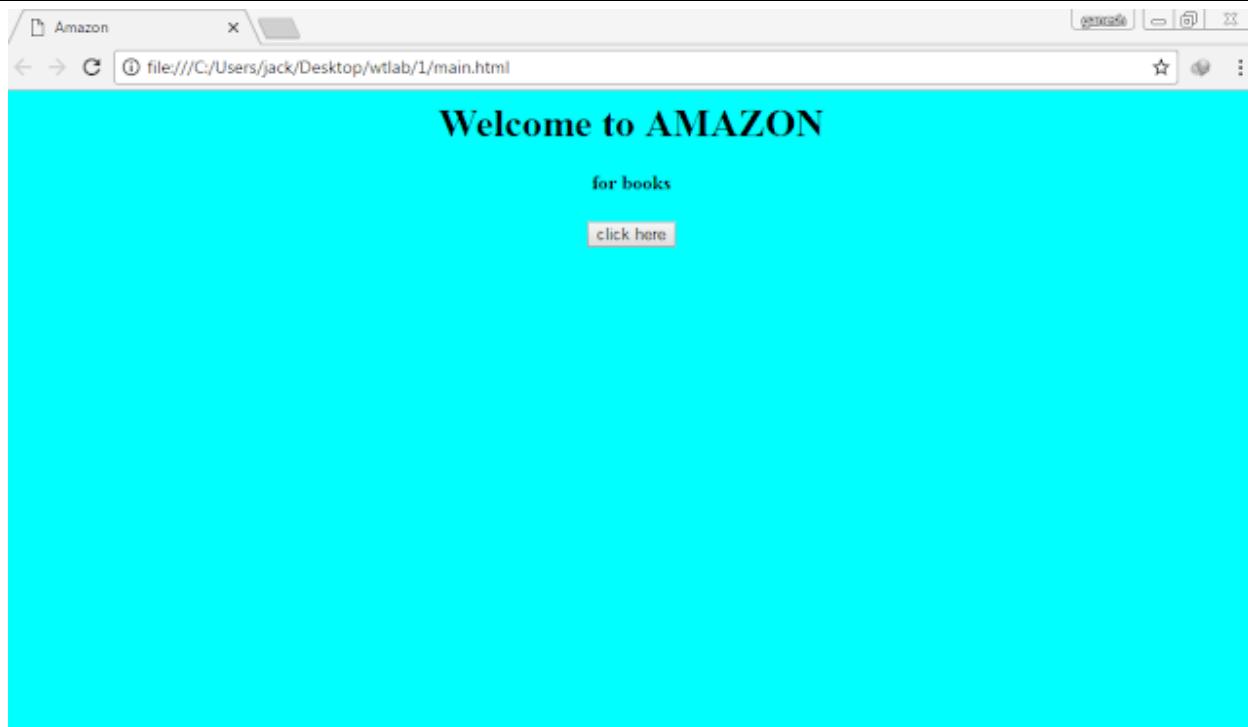
```
<html>
<head><title>payment</title></head>
<body bgcolor="cyan">
<center><h1>Payment By Credit Card</h1></center>
<form method=post action="ordrconform.html">
<br><br><br><br><br>
<table align="center">
<tr>
<td>
<h4>Total Amount</h4></td>
<td><input type="text">
</td>
</tr>
<tr>
<td><h4>Credit Card Number</h4>
<td><input type="text"></td>
```

```
</tr>
<tr>
<td>
</td>
<td><input type="submit" value=OK>
</td>
</tr>
</table>
</form></body>
</html>
```

Order Conformation

Ordrconform:

```
<html>
<head><title>order conformation</title></head>
<body bgcolor="cyan">
<center>
<h1><b>BOOK SHOPPING</b></h1>
<pre><strong>
<b>Your order Is Conformed
</strong></pre>
<h2><b>THANK YOU</b></h2>
</center>
</body></html>
```



Amazon login page Registration page

file:///C:/Users/jack/Desktop/wtlab/1/reg.html

AMAZON

user name

password

confirm password

male female

Address

books catalog userprofile shopping cart payment books catalog order conform

file:///C:/Users/jack/Desktop/wtlab/1/userprofile.html

Welcome to AMAZON Online Book Store

Edit your profile here...

Edit user name

Edit password

male female

Edit Address

books catalog userprofile shopping cart payment books catalog order conform

file:///C:/Users/jack/Desktop/wtlab/1/catlog.html

AMAZON

frontend books

C&Ds
Ads
JAVA

backend books

Oracle
Ms SQL Server
MySql

for buy one of these books
[click here](#)

books catalog userprofile shopping cart payment books catalog order conform

file:///C:/Users/jack/Desktop/wtlab/1/shopping.html

Shopping Cart

Text Books Java
Quantity

Cost of one book is "500" + shipping "100"

books catalog userprofile shopping cart payment books catalog order conform

file:///C:/Users/jack/Desktop/wtlab/1/payment.html

Payment By Credit Card

Total Amount
Credit Card Number



6. Validate the Registration, user login, user profile and payment by credit card pages using JavaScript.

REGISTRATION FORM

```
<Html>
<Head>
<Title>User Registration Form</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<script language="JavaScript" fptype="dynamicanimation">
</script>
</head>
<body>
<script language="javascript">
function verify(form)
{
if(document.forms[0].elements[0].value=="")
{
alert("Please Enter User ID");
document.forms[0].elements[0].focus();
return(false);
}

```

```
if(document.forms[0].elements[1].value=="")
{
alert("Please Enter your Password");
document.forms[0].elements[2].value="";
document.forms[0].elements[1].focus();
return(false);
}
if(document.forms[0].elements[1].value.length<4)
{
alert("Password must be greater than 4 character");
document.forms[0].elements[1].value="";
document.forms[0].elements[2].value="";
document.forms[0].elements[1].focus();
return(false);
}
if(document.forms[0].elements[2].value=="")
{
alert("Please Enter your Confirm Password");
document.forms[0].elements[2].focus();
return(false);
}
if((document.forms[0].elements[1].length) !=(document.forms[0].elements[2].length))
{
alert("Your Password does not match with Confirm Password");
document.forms[0].elements[1].value="";
document.forms[0].elements[2].value="";
document.forms[0].elements[1].focus();
return(false);
}
if((document.forms[0].elements[1].length)==(document.forms[0].elements[2].len
```

```
gth))
{
if((document.forms[0].elements[1].value) !=(document.forms[0].elements[2].valu
e))
{
alert("Your Password does not match with Confirm Password");
document.forms[0].elements[1].value="";
document.forms[0].elements[2].value="";
document.forms[0].elements[1].focus();
return(false);
}
}

if(document.forms[0].elements[3].value=="secq")
{
alert("Please Select your Security Question");
document.forms[0].elements[3].focus();
return(false);
}

if(document.forms[0].elements[4].value=="")
{
alert("Please Answer the security question");
document.forms[0].elements[4].focus();
return(false);
}

if(document.forms[0].elements[5].value=="DD")
{
alert("Please select Day of DOB");
document.forms[0].elements[5].focus();
return(false);
}

if(document.forms[0].elements[6].value=="MM")
{
alert("Please select Month of DOB");
```

```
document.forms[0].elements[6].focus();
return(false);
}
if(document.forms[0].elements[7].value=="YYYY")
{
alert("Please select Year of DOB");
document.forms[0].elements[7].focus();
return(false);
}
if(document.forms[0].elements[10].checked==true)
{
if(document.forms[0].elements[11].value=="")
{
alert("Please Enter your First Name");
document.forms[0].elements[11].focus();
return(false);
}
if(document.forms[0].elements[13].value=="")
{
alert("Please Enter your Last Name");
document.forms[0].elements[13].focus();
return(false);
}
if(document.forms[0].elements[14].value=="Year")
{
alert("Please specify your Academic year");
document.forms[0].elements[14].focus();
return(false);
}
if(document.forms[0].elements[15].value=="adminyear")
{
alert("Please put your Admission Year");
document.forms[0].elements[15].focus();
```

```
return(false);
}
if(document.forms[0].elements[16].value=="dept")
{
alert("Please Select your Department");
document.forms[0].elements[16].focus();
return(false);
}
if(document.forms[0].elements[17].value=="")
{
alert("Please put your Roll Number");
document.forms[0].elements[17].focus();
return(false);
}
if(document.forms[0].elements[17].value!="")
{
r0=document.forms[0].elements[17].value.indexOf('2');
r1=document.forms[0].elements[17].value.indexOf('k');
r2=parseInt(document.forms[0].elements[17].value.charAt(2));
r3=document.forms[0].elements[17].value.indexOf('_');
r4=parseInt(document.forms[0].elements[17].value.charAt(4));
r5=parseInt(document.forms[0].elements[17].value.charAt(5));
r6=parseInt(document.forms[0].elements[17].value.charAt(6));
len=document.forms[0].elements[17].value.length;
if((len!=7)|| (r0!=0)|| (r1!=1)|| (r3!=3)|| (r4>6 || r4<1)|| (r2>9 || r2<1))
{
alert("Not a valid Roll Number");
document.forms[0].elements[17].focus();
return(false)
}
switch(document.forms[0].elements[16].value)
{
case 'IT':
```

```
if(r4!=6||(r5>4||r5<0)|| (r6>9||r6<0))
{
alert("Not a valid Roll Number of Information Technology");
document.forms[0].elements[16].focus();
return(false)
}break;
case 'CSE':
if(r4!=5||(r5>4||r5<0)|| (r6>9||r6<0))
{
alert("Not a valid Roll Number of Computer Science");
document.forms[0].elements[16].focus();
return(false)
}break;
case 'ECE':
if(r4!=4||(r5>4||r5<0)|| (r6>9||r6<0))
{
alert("Not a valid Roll Number of Electronics");
document.forms[0].elements[16].focus();
return(false)
}break;
case 'EE':
if(r4!=2||(r5>6||r5<0)|| (r6>9||r6<0))
{
alert("Not a valid Roll Number of Electrical Engineering");
document.forms[0].elements[16].focus();
return(false)
}break;
case 'ME':
if(r4!=3||(r5>6||r5<0)|| (r6>9||r6<0))
{
alert("Not a valid Roll Number of Mechanical Engineering");
document.forms[0].elements[16].focus();
return(false)
```

```
{break;
case 'CE':
if(r4!=1||(r5>6||r5<0)|| (r6>9||r6<0))
{
alert("Not a valid Roll Number of Civil Engineering");
document.forms[0].elements[16].focus();
return(false)
}break;
}
switch(document.forms[0].elements[14].value)
{
case 'Fourth':
if(r2!=1||(r2>9||r2<0))
{
alert("Not a valid Roll Number of Forth Year");
document.forms[0].elements[14].focus();
return(false)
}break;
case 'Third':
if(r2!=2||(r2>9||r2<0))
{
alert("Not a valid Roll Number of Third Year");
document.forms[0].elements[14].focus();
return(false)
}break;
case 'Second':
if(r2!=3||(r2>9||r2<0))
{
alert("Not a valid Roll Second Year");
document.forms[0].elements[14].focus();
return(false)
}break;
```

```
case 'First':
if(r2!=4||(r2>9||r2<0))
{
alert("Not a valid Roll Number of First Year");
document.forms[0].elements[14].focus();
return(false)
}break;
}
}
}

if(document.forms[0].elements[24].checked==true)
{
if(document.forms[0].elements[25].value=="")
{
alert("Please Enter Your First Name");
document.forms[0].elements[25].focus();
return(false);
}
if(document.forms[0].elements[27].value=="")
{
alert("Please Enter your Last Name");
document.forms[0].elements[27].focus();
return(false);
}
if(document.forms[0].elements[30].value=="state")
{
alert("Please Select Your State");
document.forms[0].elements[30].focus();
return(false);
}
if(document.forms[0].elements[31].value=="country")
{
alert("Please Select Your State");
}
```

```
document.forms[0].elements[31].focus();
return(false);
}
if((document.forms[0].elements[32].value=="pincode")||(document.forms[0].elements[33].value==""))
{
alert("Please Select Your Pincode OR if Other specify");
document.forms[0].elements[32].focus();
return(false);
}
}
}

function studentclear(form)
{
document.forms[0].elements[11].value="";
document.forms[0].elements[12].value="";
document.forms[0].elements[13].value="";
document.forms[0].elements[14].value="Year";
document.forms[0].elements[15].value="adminyear";
document.forms[0].elements[16].value="dept";
document.forms[0].elements[17].value="";
document.forms[0].elements[18].value="selecthostel";
document.forms[0].elements[19].value="";
document.forms[0].elements[20].value="";
document.forms[0].elements[21].value="";
document.forms[0].elements[22].value="";
document.forms[0].elements[23].value="";
document.forms[0].elements[25].focus();
}

function generalclear(form)
{
document.forms[0].elements[25].value="";
document.forms[0].elements[26].value="";
```

```
document.forms[0].elements[27].value="";
document.forms[0].elements[28].value="City";
document.forms[0].elements[29].value="";
document.forms[0].elements[30].value="state";
document.forms[0].elements[31].value="country";
document.forms[0].elements[32].value="pincode";
document.forms[0].elements[33].value="";
document.forms[0].elements[34].value="";
document.forms[0].elements[35].value="";
document.forms[0].elements[36].value="";
document.forms[0].elements[37].value="";
document.forms[0].elements[11].focus();
}
</script>
<body onLoad=document. forms [0].elements[0].focus();>
<form action ="" method="post" onsubmit="return verify(this.form)">
<center>
<p dynamicanimation="fpAnimelasticRightFP1" id="fpAnimelasticRightFP1"
style="position: relative !important; visibility: hidden"
language="Javascript1.2">
<font size="6" face="Monotype Corsiva" color="#800000">New User
Registration Form</font></p>
</center><br>
<i><font color="#FF0000"><font face="Arial" size="4">*</font>
<font face="Arial" size="2"></font></font>
<font face="Arial" size="2"color="#FF0000">Indicates all the fields are
mandatory</font></i><hr><p>
<font size="4" face="Arial, Helvetica, sans-serif" color="#FF0000">*</font>
<font size="-1" face="Arial, Helvetica,sans-serif">User ID:</font><b>
<input name="uid" size="16" maxlength="15"></b>
<font color="#FF0033" size="2"></font>
<font face="Arial" size="2" color="#FF0033">
(Contains only letters (a-z), numbers (0-9) and underscore)</font>
```


*

Password:

<input type="password" name="pswd" size="9" maxlength="10" style="font-weight: bold; color:#008000">

(Password should be of minimum 4(four) and maximum 10(ten) characters.

) </p>

*

Re-Type Password:

<input type="password" name="cpswd" size="11" maxlength="10" style="color:#008000" >

<hr>

<i>If you forget your password, you can retrieve it by answering your unique hint question.

Frame your question such that only you know its answer.

</i>

<div align="center">

</div>

*

Select a question forgetting password :

```
<select size="1" name="secq">
<option selected value="secq">Select a hit question ?</option>
<option value="What is your favourite multimedia software?">
What is your favourite multimedia software?</option>
<option value="What is your favourite game?">What is your favourite
game?</option>
<option value="who is your favourite Cricketer?">
who is your favourite Cricketer? </option>
<option value="who is your favourite Film Actor?">
who is your favourite Film Actor?</option>
<option value="what is your favourite food?">what is your favourite
food?</option>
</select><font face="Arial"><b>
</b></font></font><p><font size="2">
</font><font size="4" face="Arial, Helvetica, sans-serif"
color="#FF0000">*</font>
<font color="#000000" face="Arial, Helvetica, sans-serif" size="2">Hit Answer:
<input type="text" name="seca" size="21"></font>
<font size="2"><font color="#000000" face="Arial, Helvetica,sans-
serif"></font>
<font color="#FF0033" face="Arial">(Write Your Answer)</font>
<font color="#000000" face="Arial"></font>
</font><font size="1"></p></font>
<hr><div align="left"><font face="Arial,Helvetica, sans-serif" size="-1">
DD MM YYYY <br>
</font>
<font size="4" face="Arial, Helvetica, sans-serif"color="#FF0000">*</font>
<font face="Arial, Helvetica, sans-serif" size="-1">Date of Birth:
<select size="1" name="DD">
<option selected value="DD">Day</option><option value="1">1</option>
<option value="2">2</option><option value="3">3</option>
<option value="4">4</option><option value="5">5</option>
<option value="6">6</option><option value="7">7</option>
```

```
<option value="8">8</option><option value="9">9</option>
<option value="10">10</option><option value="11">11</option>
<option value="12">12</option><option value="13">13</option>
<option value="14">14</option><option value="15">15</option>
<option value="16">16</option><option value="17">17</option>
<option value="18">18</option><option value="19">19</option>
<option value="20">20</option><option value="21">21</option>
<option value="22">22</option><option value="23">23</option>
<option value="24">24</option><option value="25">25</option>
<option value="26">26</option><option value="27">27</option>
<option value="28">28</option><option value="29">29</option>
<option value="30">30</option><option value="31">31</option>
</select>
<select size="1" name="MM">
<option selected value="MM">Month</option><option
value="JANUARY">JAN</option>
<option value="FEBRUARY">FEB</option><option
value="MARCH">MAR</option>
<option value="APRIL">APR</option><option value="MAY">MAY</option>
<option value="JUNE">JUN</option><option value="JULY">JUL</option>
<option value="AUGUST">AUG</option><option
value="SEPTEMBER">SEP</option>
<option value="OCTOBER">OCT</option><option
value="NOVEMBER">NOV</option>
<option value="DECEMBER">DEC</option>
</select>
<select size="1" name="YYYY">
<option selected value="YYYY">Year</option><option
value="1970">1970</option><option value="1971">1971</option><option
value="1972">1972</option><option value="1973">1973</option><option
value="1974">1974</option><option value="1975">1975</option><option
value="1976">1976</option><option value="1977">1977</option><option
value="1978">1978</option><option value="1979">1979</option><option
```

value="1980">1980</option><option value="1981">1981</option><option value="1982">1982</option><option value="1983">1983</option><option value="1984">1984</option><option value="1985">1985</option><option value="1986">1986</option><option value="1987">1987</option><option value="1988">1988</option><option value="1989">1989</option><option value="1990">1990</option><option value="1991">1991</option><option value="1992">1992</option><option value="1993">1993</option><option value="1994">1994</option><option value="1995">1995</option><option value="1996">1996</option><option value="1996">1996</option><option value="1997">1997</option><option value="1998">1998</option><option value="1999">1999</option><option value="2000">2000</option><option value="2001">2001</option><option value="2002">2002</option><option value="2003">2003</option><option value="2004">2004</option><option value="2005">2005</option><option value="2006">2006</option><option value="2007">2007</option><option value="2008">2008</option><option value="2009">2009</option><option value="2010">2010</option><option value="2011">2011</option><option value="2012">2012</option><option value="2013">2013</option><option value="2014">2014</option><option value="2015">2015</option><option value="2016">2016</option><option value="2017">2017</option><option value="2018">2018</option><option value="2019">2019</option><option value="2020">2020</option></select></div>

<p>

*

Gender:

<input type="radio" name="Male" value="male" checked> Male

<INPUT type=radio value="female" name="Male" >Female

<hr>

<p>

Contact No: <input type="text" size="6" name="std" maxlength="6"> -

```
<input type="text" size="9" name="phno" maxlength="9">
</font><p>
<font face="Arial, Helvetica, sans-serif" size="-1">
Mobile No: <input type="text" size="18" name="mobno"
maxlength="15"></font><p><font face="Arial, Helvetica, sans-serif" size="-1">
Email:<input type="text" name="email" size="20">
</font><p><hr>
<div align="left"><font face="Arial, Helvetica, sans-serif" size="-1">
</font></div><center>
<input type="submit" value="Submit" name="Submit" tabindex="25">
<input type="reset" value="Reset" name="Reset" tabindex="26">
</center></form></body></html>
```

output:

[IMG]<http://i29.tinypic.com/2dsitqq.jpg>[/IMG]

7. Create and save an XML document on the server, which contains 10 users information. Write a program, which takes User Id as an input and returns the user details by taking the user information from the XML document

StudentDetails.Java :

```
import
javax.servlet.*;
import
java.util.*;
import java.io.*;

import
javax.xml.parsers.*;
import
org.w3c.dom.*;
public class StudentDetails implements Servlet
{
```

```
private
DocumentBuilderFactory
fact; private
DocumentBuilder builder;
private Document doc;

private NodeList
list,childs; private
Node
node,parent,child;
private String str;

private String
hallTicket; private
ServletConfig sc;

public void init(ServletConfig sc)

{
    try
    {
        this.sc=sc;

        str="C:\Program Files\Apache Software Foundation\Tomcat
5.0\webapps\StudentDetails\WEB- INF\classes\Details.xml";

        fact=DocumentBuilderFactory.ne
wInstance(); builder
=fact.newDocumentBuilder();
doc=builder.parse(str);

        System.out.println("In the Init Method");

    }

    catch(Exception e)
```

```
{  
    System.out.println("Error in the Init Method"+e.getMessage());  
}  
}  
  
public void service(ServletRequest req, ServletResponse res) throws  
ServletException, IOException  
{  
    hallTicket=req.getParameter("hall");res.setContentType("text/html");  
    PrintWriter pw=res.getWriter();  
    list=doc.getElementsByTagName("HallTicketNo");  
    pw.print("<center><h1>Welcome To Student  
Details</center></h1>");  
    for(int i=0;i<list.getLength();i++)  
    {  
        node=list.item(i);  
        if(node.getTextContent().equals(hallTicket))  
        {  
            parent=node.getParentNode();  
            childNodes=parent.getChildNodes();  
        }  
    }  
}
```

```

        for(int j=1;j<childs.getLength()-1;j=j+2)                                16

        {
            child=childs.item(j);

            brea pw.print("<center>" + child.getNodeName() + "" + child.getTextC
        }/f k; ontent());
        or }/if }

}//service

public ServletConfig getServletConfig()
{
return sc;
}

public String getServletInfo()
{
return "Developed By Khaja HabeebUddin";
}

public void destroy()
{
}
}

LogIn.html :
<html><head><title>StudentDetails</title>
</head>

<body style="height: 100%;width:100%; margin: 0; padding: 0;overflow-y:hidden;">
```

LogIn.html :

```

<html><head><title>StudentDetails</title>
</head>

<body style="height: 100%;width:100%; margin: 0; padding: 0;overflow-y:hidden;">
```

```
<form method="post"
action="http://localhost:8080/StudentDetails/MyServletEx">

<div>
</div>

<div
style="position:absolute;top:0;left:0;width:100%;height:100%;margin:0;padding
:0;z-index:0;">


</div>

<div style="position:absolute;top:4%;left:25%;z-index:1" align="center">
<font size="6" color="red" >Vidya Vikas Institute of Technololy</font>
<br/>
<font size=4 color="red">(Affiliated to JNTU Approved By AICTE)</font>
<br/>
<font size=3 color="red">Sy. No 103 &104 Shabad X Road, Chevella</font>
<br/>
<font size=3 color="red">Ranga Reddy District Andhra Pradesh</font>
<br/>
</div>

<div style="position:absolute;top:60%;right:5%; z-index:2">
<input type="text" SIZE="10" name="hall"><br/>
<input type="submit" value="Submit">
</div>
```

</form>

</body>

</html>

web.xml:

```

<web-app>
<servlet>
<servlet-name>Student</servlet-name>
<servlet-class>StudentDetails</servlet-class>
</servlet>
<servlet-mapping>
<servlet-name>Student</servlet-name>
<url-pattern>/MyServletEx</url-pattern>
</servlet-mapping>
</web-app>

```

Details.xml output:

- <StudentDetails>
- <Details>
 - <HallTicketNo>**05e21a0501**</HallTicketNo>
 - <Name>**Shravya**</Name>
 - <Education>**B.Tech**</Education>
 - <Specialization>**CSE**</Specialization>
 - <Year>**IV**</Year>
 - <Semester>**I**</Semester>
 - <Ambition>**SoftwareEngineer**</Ambition>
 - <Hobby>**Reading Books**</Hobby>
 - </Details>
- <Details>
 - <HallTicketNo>**05e21a0502**</HallTicketNo>

<Name>**UshaSingh**</Name>

<Education>**B.Tech**</Education>

<Specialization>**CSE**</Specialization>

<Year>**IV**</Year>

<Semester>**I**</Semester>

<Ambition>**SoftwareEngineer**</Ambition>

<Hobby>**Dance**</Hobby></Details>- <Details>

<HallTicketNo>**05e21a0503**</HallTicketNo><Name>**Archana**</Name>

<Education>**B.Tech**</Education>

<Specialization>**CSE**</Specialization><Year>**IV**</Year><Semester>**I**</Semester>

<Ambition>**SoftwareEngineer**</Ambition>

<Hobby>**Foot Ball**</Hobby></Details>- <Details>

<HallTicketNo>**05e21a0504**</HallTicketNo><Name>**Pavani**</Name>

<Education>**B.Tech**</Education>

<Specialization>**CSE**</Specialization>

<Year>**IV**</Year>

<Semester>**I**</Semester>

<Ambition>**SoftwareEngineer**</Ambition>

<Hobby>**Cricket**</Hobby>

</Details>-

<Details><HallTicketNo>**05e21a0505**</HallTicketNo><Name>**VishnuVardhan**</Name>

<Education>**B.Tech**</Education><Specialization>**CSE**</Specialization></Details>

</StudentDetails>

2. Install TOMCAT web server. Convert the static webpages of assignments 2intodynamic webpages using servlets and cookies. Hint: Users information (user id, password, credit card number) would be stored in web.xml. Each user should have a separate Shopping Cart. 25

PROCEDURE:

First install the tomcat into the system.

Then make a subdirectly(eg., tr) in the \tomcat\webapps.

Under tr create WEB-INF directory and also place the html files in this tr directory only. Next under WEB-INF create two subclasses lib,classes and web.xml

Next place all the class files under the classes and jar files(servlet-api.jar,classes12.jar etc...) under lib subdirectories.

After this start tomcat by giving the following command
at the instll_dir>tomcat>bin Catalina.bat run

At the I.E(web browser) give the url as

http://localhost:8080//tr/htmlfile or servlet url pattern Portno 8080 is assigned for the tomcat.

Web.xml

```
<?xml version="1.0" encoding="iso-8859-1"?>
<!DOCTYPE web-app
PUBLIC "-//Sun Microsystems, Inc.//DTD Web
Application 2.3//EN"
"http://java.sun.com/dtd/web-app_2_3.dtd">
<web-app>
    <display-name>Servlet 2.4 Examples</display-name>
    <description>
        Servlet 2.4 Examples.
```

```
</description>
<servlet>
    < servlet-name>reg</servlet-name>
    < servlet-class>reg</servlet-class>
</servlet>
<servlet>
    < servlet-name>login</servlet-name>
    < servlet-class>login</servlet-class>
</servlet>
<servlet>
    < servlet-name>profile</servlet-name>
    < servlet-class>profile</servlet-class>
</servlet>
<servlet>
    < servlet-name>catalog</servlet-name>
    < servlet-class>catalog</servlet-class>

<servlet-mapping>
    < servlet-name>order</servlet-name>
    < url-p</servlet>
<servlet>
    < servlet-name>order</servlet-name>
    < servlet-class>order</servlet-class>
</servlet>
attern>order</url-
pattern>
</servlet-mapping>
<servlet-mapping>
    < servlet-name>catalog</servlet-name>
    < url-pattern>catalog</url-pattern>
```

```

</servlet-mapping>
<servlet-mapping>
    < servlet-name>profile</servlet-name>
    < url-pattern>profile</url-pattern>
</servlet-mapping>
<servlet-mapping>
    < servlet-name>login</servlet-name>
    < url-pattern>login</url-pattern>
</servlet-mapping>
<servlet-mapping>
    < servlet-name>reg</servlet-name>
    < url-pattern>reg</url-pattern>
</servlet-mapping>
</web-app>

```

Main.html

```

<!DOCTYPE html PUBLIC "-//W3C//DTD
XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<body bgcolor="pink">
<br /><br /><br /><br /><br />
<h1 align="center"><U>ONLINE BOOK STORAGE</U></h1><br /><br
/><br />
<h2 align="center"><pre>
<b>Welcome to online
book storage. Press
LOGIN if you are having
id otherwise press
REGISTRATION
</b></pre></h2>
<br /><br /><pre>
<div align="center"><a
href="/tr/login.html">LOGIN</a><a
href="/tr/reg.html"> REGISTRATION</a></div></pre>
</body>
</html>

```

Login.html

```

<html>
<body bgcolor="pink"><br /><br /><br />

```

```
<form name="myform" method="post" action="/tr/login">
<div align="center"><pre>
LOGIN ID :<input type="text" name="id" /><br />
PASSWORD :<input type="password" name="pwd" /></pre><br /><br />
</div>
<br /><br />
<div align="center">
<input type="submit" value="ok" onclick="validate()" />&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;<input
type="reset" value="clear" />
</div>
</form>
</body>
</html>
```

Reg.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD
XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<body bgcolor="pink"><br /><br />
<form name="myform" method="post" action="/tr/reg">
<div align="center"><pre>
NAME :<input type="text" name="name" /><br/>
ADDRESS :<input type="text"
name="addr" /><br /> CONTACTNUMBER
:<input type="text"
name="phno" /><br /> LOGINID :<input
type="text" name="id" /><br />
PASSWORD :<input type="password" name="pwd" /></pre><br
/><br />
</div>
<br /><br />
<div align="center">
<input type="submit" value="ok" onclick="validate()"
/>&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;<input
type="reset" value="clear" />
</div>
</form>
</body>
</html>
```

Profile.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD
XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<body bgcolor="pink"><br /><br /><br />
<form name="myform" method="post" action="/tr/profile">
<div align="center"><pre>
LOGIN ID :<input type="text" name="id" /><br />
</pre><br /><br />
```

```
</div>
<br /><br />
<div align="center">
<input type="submit" value="ok" onclick="validate()" />&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;<input type="reset" value="clear" />
</div></form></body></html>
```

Catalog.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<body bgcolor="pink"><br /><br /><br />
<form method="post" action="/tr/catalog">
<div align="center"><pre>
BOOK TITLE :<input type="text" name="title" /><br />
</pre><br /><br />
</div>
<br /><br />
<div align="center">
<input type="submit" value="ok"
name="button1"/>&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
<input type="reset" value="clear" name="button2"/>
</div>
</form>
</body></html>
```

Order.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD
XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">

<body bgcolor="pink"><br /><br />
<form method="post" action="/tr/reg">
<div align="center"><pre>
NAME :<input type="text"
name="name" /><br /> PASSWORD :<input
type="password" name="pwd" /> TITLE
:<input type="text"
name="title" /><br /> NO.OFBOOKS:<input
type="text" name="no" /><br /> DATE
:<input type="text"
name="date" /><br/>
CREDIT CARD NUMBER:<input type="password" name="cno" /><br
/></pre><br /><br />
</div>
<br /><br />
<div align="center">
<input type="submit" value="ok"
name="button1"/>&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;<input
type="reset" value="clear" name="button2"/>
</div>
</form>
</body>
</html>
```

Login.java

```
import java.sql.*;
import
java.io.*;
import
java.util.*;
import
javax.servlet.*;
import javax.servlet.http.*;
public class login extends HttpServlet
{
    public void service(HttpServletRequest
req,HttpServletResponse resp) throws
ServletException,IOException
    {
        PrintWriter
        pw=resp.getWriter();
        pw.println("<html><body"
        bgcolor=\"pink\"");
        String id=req.getParameter("id");
        String
        pwd=req.getParameter("p
wd"); try
        {
            Driver
            d=new oracle.jdbc.driver.OracleDriver();
            DriverManager.registerDriver(d);
            Connection
            con=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1
521:orcl","scott","tiger")
            ;
            Statement stmt=con.createStatement();
            String sqlstmt="select
            id,password from login";
            ResultSet
            rs=stmt.executeQuery(sqlstmt);
            int flag=0;
            while(rs.n
ext())
            {
                if(id.equal(rs.getString(1))&&pwd.equals(rs.getString(2))
                {
                    pw.println("User Name & Password are correct");
                    flag=1;
                }
            }
            if(flag==0)
                pw.println("User Name & Password are incorrect");
        }
    }
}
```

```

        }
        flag=1;
    }
}
if(flag==0)
{
    pw.println("SORRY INVALID ID TRY AGAIN
ID<br><br>");
}
pw.println("<a href=\"tr/login.html\">press LOGIN to
el  RETRY</a>");
se
{
    pw.println("VALID LOGIN
ID<br><br>");
    pw.println("<h3><ul>");
    pw.println("<li><ahref=\"profile.html\"><fontcol
or=\"black\">USER PROFILE</font>
</a></li><br><br>");
    pw.println("<li><ahref=\"catalog.html\"><fontcolor
=\"black\">BOOKS
CATALOG</font></a></li><br><br>");
    pw.println("<li><ahref=\"order.html\"><fontcolo
r=\"black\">ORDER CONFIRMATION</font>
</a></li><br><br>");
}
pw.println("</body></html>");
}
catch(Exception e)
{
    resp.sendError(500,e.toString());
}
}

```

Reg.html

```
import  
java.sql.*;  
import  
java.io.*;  
import  
java.util.*;  
import  
javax.servlet.*;  
import javax.servlet.http.*;  
public class login extends HttpServlet  
{  
    public void service(HttpServletRequest  
req,HttpServletResponse resp) throws  
ServletException,IOException  
{  
    PrintWriter  
    pw=resp.getWriter();  
    pw.println("<html><body  
    bgcolor=\"pink\"); String  
    name=req.getParameter("na  
    me"); String  
    addr=req.getParameter("addr")  
    ; String  
    phno=req.getParameter("phno  
    ");  
    Stringid=req.getParameter("i  
    d");  
    String  
    pwd=req.getParameter("p  
    wd"); int  
    no=Integer.parseInt(phno)  
    ;  
    try  
    {  
        Driver d=new  
        oracle.jdbc.driver.OracleDriver();  
        DriverManager.registerDriver(d);
```

```

Connection
con=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1
521:orcl","scott","tiger")
;
Statement stmt=con.createStatement();
String sqlstmt="select
id,password from login";
ResultSet
rs=stmt.executeQuery(sqlstmt);
int flag=0;
while(rs.n
ext())
{
    if(id.equal(rs.getString(1))&&pwd.equals(rs.getString(2))
    )
    {
        flag=1;
    }
}
if(flag==1)
{
pw.println("SORRY INVALID ID ALREADY EXISTS TRY
AGAIN WITH NEW
ID<br><br>");
pw.println("<a href=\"/tr/reg.html\">press REGISTER to
RETRY</a>");
}
else
{
    Statement
stmt1=con.createStatement();
stmt1.executeUpdate("insertintologin
values("+names+","+addr+","+no+","+id+",
"+pwd+")); pw.println("YOUR DETAILS
AREENTERED<br><br>");
pw.println("<a href=\"/tr/login.html\">press LOGIN to
login</a>");
}
pw.println("</body></html>");
}
catch(Exception e)
{
    resp.sendError(500,e.toString());
} } }
```

Catlog.java

```
import
java.sql.*;
import
java.io.*;
import
java.util.*;
import
javax.servlet.*;
import javax.servlet.http.*;
public class login extends HttpServlet
{
    public void service(HttpServletRequest
req,HttpServletResponse resp) throws
ServletException,IOException
{
    PrintWriter
    pw=resp.getWriter();
    pw.println("<html><body"
    bgcolor=\"pink\"); String
    title=req.getParameter("title");
    try
    {
        Driver d=new
        oracle.jdbc.driver.OracleDriver();
        DriverManager.registerDriver(d);
        Connection
        con=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1
521:orcl","scott","tiger")
        ;
        Statement stmt=con.createStatement();
        String sqlstmt="select
        id,password from login";
        ResultSet
        rs=stmt.executeQuery(sqlstmt);
        int flag=0;
        while(rs.n
        ext())
        {

```

```
        pw.println(",div align=\"center\>");  
        pw.println("TITLE  
                :" + rs.getString(1)  
                + "<br>"); pw.println("AUTHOR  
                :" + rs.getString(2) + "<br>");  
        pw.println("VERSION  
                :" + rs.getString(3) + "<br>");  
        pw.println("PUBLISHER  
                :" + rs.getString(4)  
                + "<br>"); pw.println("COST  
                :" + rs.getString(5)  
                + "<br>"); pw.println("</div");  
        flag = 1;  
    }  
    if (flag == 0)  
    {  
        pw.println("SORRY INVALID TITLE TRY AGAIN  
                <br><br>");  
        pw.println("<a href=\"/" + tr.catalog.html + "\">press HERE to  
                RETRY</a>");  
    }  
    pw.println("</body></html>");  
}  
catch (Exception e)  
{  
    resp.sendError(500, e.toString());  
}  
}  
}
```

Profile.java

```
import
java.sql.*;
import
java.io.*;
import
java.util.*;
import
javax.servlet.*;
import javax.servlet.http.*;
public class login extends HttpServlet
{
    public void service(HttpServletRequest
req,HttpServletResponse resp) throws
ServletException,IOException
{
    PrintWriter
    pw=resp.getWriter();
    pw.println("<html><body"
    bgcolor=\"pink\"); String
    id=req.getParameter("id");
    try
    {
        Driver d=new
        oracle.jdbc.driver.OracleDriver();
        DriverManager.registerDriver(d);
        Connection
            con=DriverManager.getConnection(
                "jdbc:oracle:thin:
                @localhost:1521:orcl","scott","tig
                er");
        Statement stmt=con.createStatement();
        String sqlstmt="select * from login
        where id="+id+""; ResultSet
        rs=stmt.executeQuery(sqlstmt);
        int flag=0;
        pw.println("<br><br><br>
        "); while(rs.next())
```

```
{  
    pw.println("<div  
    align=\"center\">");  
    pw.println("NAME  
        :" + rs.getString(1) +  
        "<br>");  
    pw.println("ADDRESS:" + rs.getStri  
ng(2) + "<br>");  
    pw.println("PHONENO  
        :" + rs.getString(3) +  
        "<br>"); pw.println("</div>");  
    flag = 1;  
}  
if(flag == 0)  
{  
    pw.println("SORRY INVALID ID TRY AGAIN  
ID<br><br>");  
    pw.println("<a href=\"/tr/profile.html\">press HERE to  
RETRY</a>");  
}  
pw.println("</body></html>");  
}  
}  
catch(Exception e)  
{  
    resp.sendError(500,e.toString());  
}  
}  
}
```

Order.java

```
import  
java.sql.*;  
import  
java.io.*;  
import  
java.util.*;  
import  
javax.servlet.*;  
import javax.servlet.http.*;  
public class login extends HttpServlet  
{  
    public void service(HttpServletRequest  
req,HttpServletResponse resp) throws  
ServletException,IOException  
{  
    PrintWriter  
    pw=resp.getWriter();  
    pw.println("<html><body  
    bgcolor=\"pink\");  
    String id=req.getParameter("i  
d");  
    String  
    pwd=req.getParameter("p  
wd"); String  
    title=req.getParameter("tit  
le"); String  
    count1=req.getParameter(  
    "no"); String  
    date=req.getParameter("da  
te"); String  
    cno=req.getParameter("cn  
o");  
    intcount=Integer.parseInt(  
    count1);  
    try  
    {  
        Driver d=new
```

```
oracle.jdbc.driver.OracleDriver();
DriverManager.registerDriver(d);
Connection
con=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1
521:orcl","scott","tiger")
;
Statement stmt=con.createStatement();
String sqlstmt="select
id,password from login";
ResultSet
rs=stmt.executeQuery(sqlstmt);
int
flag=0,amoun
t,x;
while(rs.next(
))
{
    if(id.equals(rs.getString(1))&&pwd.equals(rs.getString(2)
))
    {
        flag=1;
    }
}
if(flag==0)
{
    pw.println("SORRY INVALID ID TRY AGAIN
ID<br><br>");
    pw.println("<a href=\"\\tr/order.html\">press HERE to
RETRY</a>");
}

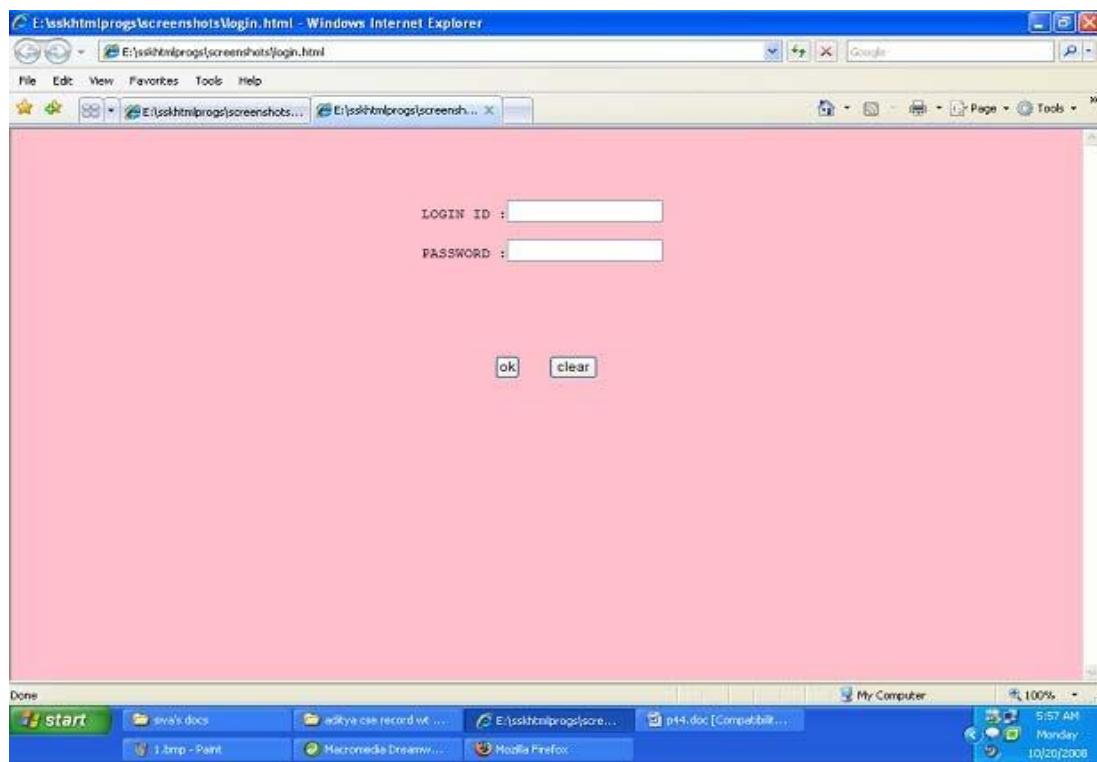
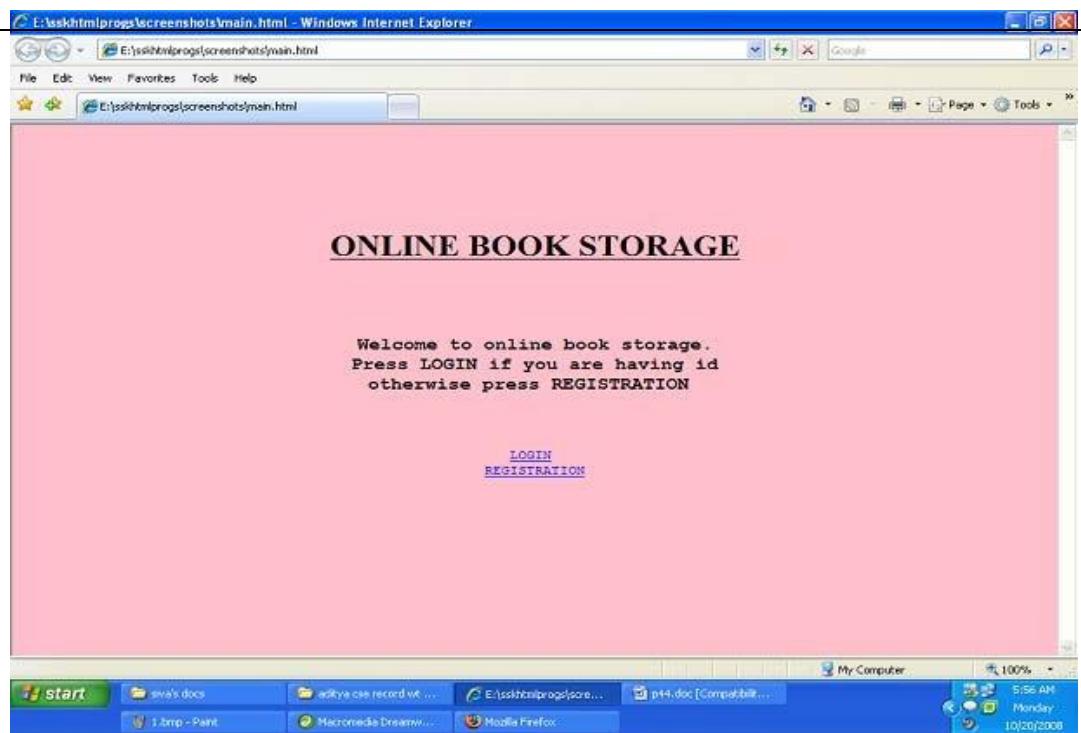
else
{
    Statement stmt2=con.createStatement();
    String s="select cost from book
    where title='"+title+"'"; ResultSet
    rs1=stmt2.executeQuery(s);
    int flag1=0;
    while(rs1.n
```

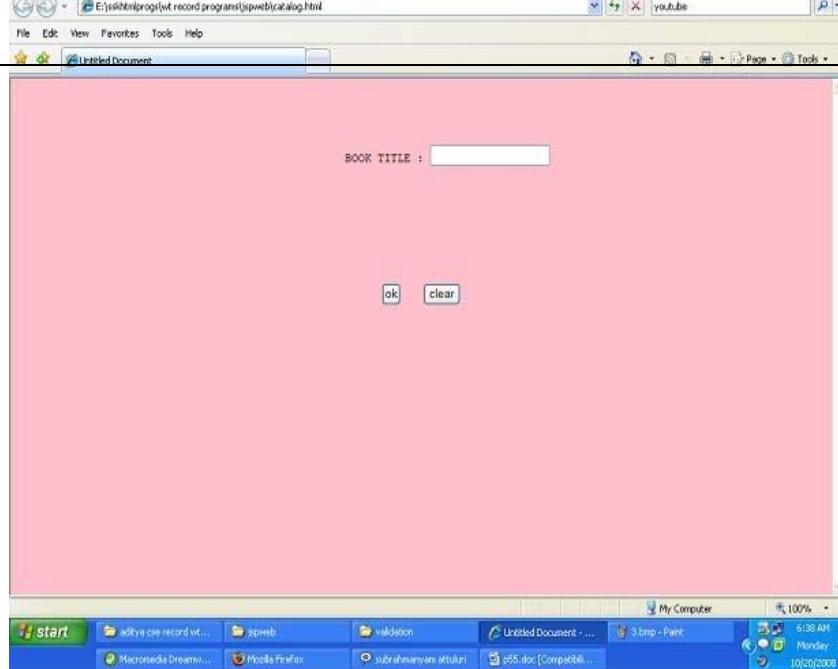
```
e          t())
x          {
    flag1=1;
    x=Integer.parseInt(rs1.g
etString(1));
```

```
amount=count*x;
pw.println("AMOUNT
:"+amount+"<br><br><br><br>");
Statement stmt1=con.createStatement();
stmt1.executeUpdate("insertintodetails
values("+id+","+title+","+amount+", '"+cno+"')
"); pw.println("YOUR ORDER has
taken<br>");

}
if(flag1==0)
{
    pw.println("SORRY INVALID ID TRY AGAIN
ID<br><br>");
pw.println("<a href='\\tr/order.html\\'>press HERE to
RETRY</a>");

}
pw.println("</body><
/html>"); con.close();
}
catch(Exception e)
{
    resp.sendError(500,e.toString());
}
}
```





E:\sskhtml\progs\screenshots\login.html - Windows Internet Explorer

File Edit View Favorites Tools Help

Untitled Document - Windows Internet Explorer

File Edit View Favorites Tools Help

Untitled Document

LOGIN ID :

PASSWORD :

LOGIN ID :
PASSWORD :
TITLE :
NO. OF BOOKS :
DATE :
CREDIT CARD NUMBER :

ok clear

Done

start aditya cse record wt... jsweb validation Untitled Document - ... 3.bmp - Paint Macromedia Dreamwe... Mozilla Firefox subrahmanyam attulan v55.doc [Compatibility...]

My Computer 100% 5:57 AM Monday 10/20/2008

9. Redo the previous task using JSP by converting the static web pages of assignments 2 into dynamic web pages. Create a database with user information and books information. The books catalogue should be dynamically loaded from the database. Follow the MVC architecture while doing the website.

TEXT BOOKS: 1. WEB TECHNOLOGIES: A Computer Science Perspective, Jeffrey C. Jackson, Pearson Education

REFERENCES: 1. Deitel H.M. and Deitel P.J., “Internet and World Wide Web How to program”, Pearson International, 2012, 4th Edition. 2. J2EE: The complete Reference By James Keogh, McGraw-Hill 3. Bai and Ekedhi, The Web Warrior Guide to Web Programming, Thomson 4. Paul Dietel and Harvey Deitel,” Java How to Program”, Prentice Hall of India, 8th Edition 5. Web technologies, Black Book, Dreamtech press. 6. Gopalan N.P. and Akilandeswari J., “Web Technology”, Prentice Hall of India

PROCEDURE:

- 1) Create your own directory under tomcat/webapps (e.g. tr1)
- 2) Copy the html files in tr1
- 3) Copy the jsp files also in tr1
- 4) Start tomcat give the following command Catalina.bat run
At install-dir/bin
- 5) at I.E give url as http://localhost:8081/tr1/main.html

Main.html:

```
<html>
<body bgcolor="pink">
<br><br><br><br><br><br>
<h1 align="center">>U>ONLINE BOOK
STORAGE</u></h1><br><br><br>
<h2 align="center"><PRE>
<b>Welcome to onlinebo
okstorage.
Press LOGIN if you ar
e having id

Otherwise press REGISTRATION

</b></PRE></h2>
<br><br><pre>
<div align="center"><a
href="/tr/login.html">LOGIN</a>
<a href="/tr/login.html">REGISTRATIO
N</a></div></pre>
</body></html>
```

Login.html:

```
<html>

<body bgcolor="pink"><br><br><br>

<form name="myform" method="post" action=/tr1/login.jsp">

<div align="center"><pre>

LOGINID:<input type="password" name="pwd"
></pre><br><br>PASSWORD:<input type="pass
word" name="pwd"></pre><br><br>

</div>

<br><br>

<div align="center">

<input type="submit" value="ok"
       onClick="validate()">&ampnbsp&ampnbsp&ampnbsp&ampnbsp&ampnb
sp;<input
       type="reset" value="clear">

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

```
<html>

<body bgcolor="pink"><br><br>

<form name="myform" method="post" action="/tr1/reg.jsp">

<div align="center"><pre>

NAME
    :<input type="text" name="name"><br> ADDRESS :<input
    type="text" name="addr"><br>

CONTACT NUMBER : <input
    type="text" name="phno"><br>LOGIN
ID
    :<input type="text" name="id">
<br>

PASSWORD : <input type="password" name="pwd"></pre><br><br>
</div>

<br><br>

<div align="center">
    <input type="submit" value="ok"
        onClick="validate()">(>&nbsp;&nbsp;&nbsp;&nbsp;&n
bsp;<input
        type="reset" value="clear">
</form>

</body>

</html>
```

Profile.html:

```
<html>

<body bgcolor="pink"><br><br>

<form name="myform" method="post" action="/tr1/profile.jsp">

<div align="center"><pre>

LOGINID  :<input type="text" name="id"><br>

</pre><br><br>

</div>

<br><br>

<div align="center">

<input type="submit" value="ok"
       onClick="validate()">( &ampnbsp&ampnbsp&ampnbsp&n
bsp;<input
       type="reset" value="clear">

</form>

</body>

</html>
```

Catalog.html:

```
<html>

<body bgcolor="pink"><br><br><br>

<form method="post" action="/tr1/catalog.jsp">

<div align="center"><pre>
```

BOOK TITLE : <input type="text" name="title">

</pre>

</div>

<div align="center">

<input type="submit" value="ok" name="button1"> <input type="reset" value="clear" name="button2" on2>

</form>

</body>

</html>

Order.html:

```
<html>

<body bgcolor="pink"><br><br><br>

<form method="post" action="/tr1/order.jsp">

<div align="center"><pre>

LOGINID      :<input
type="text" name="id"><br>
PASSWORD:<input type="password"
"name="pwd"><br> TITLE
      :<input type="text" name="tit
le"><br>

NO.OFBOOKS:<input type="text"
name="no"><br>DATE
      :<input type="text" name="
date"><br>

CREDIT CARD NUMBER : <input type="password"
name="cno"><br></pre><br><br>

</div>

<br><br>

<div align="center">

<input      type="submit"
value="ok" name="button1">&nbsp;&nbsp;&nbsp;&nbsp;<input
type="reset" value="clear" name="button2">

</form>

</body>
```

</html>

```
%@page import="java.sql.*"%  
%@page import="java.io.*%  
  
<%  
  
out.println("<html><body  
bgcolor=\\"pink\\""); String  
id=request.getParameter("id");  
  
String  
pwd=request.getParameter("pw  
d"); Driver d=new  
oracle.jdbc.driver.OracleDriver();  
DriverManager.registerDriver  
(d);  
  
Connection  
con=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:orcl",  
"scott","tiger"); Statement stmt=con.createStatement();  
  
String sqlstmt="select id,password from login where id='"+id+"'  
and password='"+pwd+"'"; ResultSet  
rs=stmt.executeQuery(sqlstmt);  
  
int flag=0;  
while(rs.next())  
  
{  
  
flag=1;  
  
}  
  
if(flag==0)  
  
{  
  
out.println("SORRY INVALID ID TRY AGAIN ID<br><br>");
```

```
    out.println("<a href=\"'/tr1/login.html\">press LOGIN to RETRY</a>");

}

else

{

    out.println("VALID LOGIN ID<br><br>");

    out.println("<h3><ul>");

        out.println("<li><ahref=\"profile.html\"><fontcolor=\"black\">USER
PROFILE</font></a></li><br><br>");

    out.println("<li><ahref=\"catalog.html\"><fontcolor=\"black\">BOOKS
CATALOG</font></a></li><br><br>");

        out.println("<li><ahref=\"order.html\"><fontcolor=\"black\">ORDER
CONFIRMATION</font></a></li><br><
br>"); out.println("</ul>");

}

out.println("<body></html>");

%>
```

Reg.jsp:

```
%@page import="java.sql.*"%  
%@page import="java.io.*"%  
<%  
  
out.println("<html><body  
bgcolor=\\"pink\\""); String  
name=request.getParameter("nam  
e"); String  
addr=request.getParameter("add  
r"); String  
phno=request.getParameter("ph  
no"); String  
id=request.getParameter("id")  
;  
  
String  
pwd=request.getParameter("p  
wd"); int  
no=Integer.parseInt(phno);  
  
Driver d=new  
oracle.jdbc.driver.OracleDriver();  
DriverManager.registerDriver  
(d);  
  
Connection con=  
  
DriverManager.getConnection  
("jdbc:oracle:thin:@localhost:1521:orcl","scott","tiger");  
Statement stmt=con.createStatement();  
  
String sqlstmt="select id  
from login"; ResultSet  
rs=stmt.executeQuery(sqlstm  
t); int flag=0;
```

```
while(rs.next())
{
    if(id.equals(rs.getString(1)))
    {
        flag=1;
    }
}
if(flag==1)
{
    out.println("SORRY LOGIN ID ALREADY EXISTS TRY AGAIN WITH
    NEW ID <br><br>");
    out.println("<a href='"/tr1/reg.html'">press REGISTER to RETRY</a>");
}
else
{
    Statement stmt1=con.createStatement ();
    stmt1.executeUpdate("insertintologinvalues("+name+","+addr+",
    no+","+id+","+pwd+ ")");
    out.println("YOU DETAILS ARE ENTERED<br><br>");
    out.println ("<a href ='"/tr1/login.html'">press LOGIN to login</a>");
}
out.println ("</body></html>");
%>
```

Profile.jsp:

```
<%@page import="java.sql.*"%>
<%@page import="java.io.*"%>

<%
    out.println ("<html><body
        bgcolor=\\"pink\\">"); String
        id=request.getParameter("id"
    );

    Driver d=new
        oracle.jdbc.driver.OracleDriver();
    DriverManager.registerDriver(
        d);

    Connection con=
        DriverManager.getConnection
            ("jdbc:oracle:thin:@localhost:1521:orcl","scott","tiger");
        Statement stmt=con.createStatement ();

        String sqlstmt="select * from login
            where id='"+id+"'"; ResultSet
            rs=stmt.executeQuery (sqlstmt);

        int flag=0;
        while(rs.next())
    {

        out.println ("<div align=\\"center\\">");
        out.println("NAME
            :" +rs.getString(1)+"
            <br>"); out.println ("ADDRESS
            :" +rs.getString(2)+"<br>");
        out.println ("PHONE NO
            :" +rs.getString(3)+"<br>");
        out.println("</div>");

    }
```

```
flag=1;  
}  
  
if(flag==0)  
{  
    out.println("SORRY INVALID ID TRY AGAIN ID <br><br>");  
    out.println("<a href=\"/tr1/profile.html\">press HERE to RETRY </a>");  
}  
  
out.println ("</body></html>");  
  
%>
```

```
<%@page import="java.sql.*"%>
<%@page import="java.io.*"%>
<%
    out.println (“<html><body
    bgcolor=\”pink\”>”); String
    title=request.getParameter
    (“title”); Driver d=new
    oracle.jdbc.driver.OracleDriver
    ();
    DriverManager.registerDriver
    (d);

    Connection con=
    DriverManager.getConnection
    (“jdbc:oracle:thin:@localhost:1521:orcl”, “scott”, “tiger”);
    Statement stmt=con.createStatement ();

    String sqlstmt=“select * from book where
    title=“+title+””; ResultSet
    rs=stmt.executeQuery (sqlstmt);

    int
    flag=0;
    while(rs.ne
        xt())
    {
        out.println (“<div align=\”center\”>”);
        out.println(“TITLE
                    :”+rs.getString(1)+”
        <br>”); out.println (“AUTHOR
                    :”+rs.getString(2)+”<br>”);
    }
}
```

```
    out.println  
    ("VERSION:"+rs.getString(3)+"<  
     br>"); out.println ("PUBLISHER :"  
     +rs.getString(4)+"<br>");  
    out.println ("COST :"  
     +rs.getString(5)+"<br>");  
    out.println("</div>");  
  
    flag=1;  
  
}  
  
if(flag==0)  
{  
    out.println("SORRY INVALID ID TRY AGAIN ID <br><br>");  
    out.println("<a href=\"/tr1/catalog.html\">press HERE to RETRY </a>");  
  
}  
  
out.println ("</body></html>");  
  
%>
```

Order.jsp:

```
<%@page import="java.sql.*"%>
<%@page import="java.io.*"%>

<%
out.println (“<html><body
bgcolor=\\\"pink\\\">”); String
id=request.getParameter
(“id”);

String
pwd=request.getParameter
(“pwd”); String
title=request.getParameter
(“title”); String
count1=request.getParameter
(“no”); String
date=request.getParameter
(“date”); String
cno=request.getParameter
(“cno”); int
count=Integer.parseInt(cou
nt1);

Driver d=new
oracle.jdbc.driver.OracleDriver
();
DriverManager.registerDriver
(d);

Connection con=
DriverManager.getConnection
(“jdbc:oracle:thin:@localhost:1521:orcl”, “scott”, “tiger”);
Statement stmt=con.createStatement();
```

```
String sqlstmt="select id, password  
from login"; ResultSet  
rs=stmt.executeQuery (sqlstmt);  
  
int flag=0,amount,x;  
while(rs.next())  
  
{  
  
if(id.equals(rs.getString(1))&& pwd.equals(rs.getString(2)))  
  
{  
  
flag=1;  
  
}  
  
}  
  
if(flag==0)  
  
{  
  
}  
  
els }  
e  
  
{  
  
}
```

```
o r><br>");  
ut out.println("<a href=\"/tr1/order.html\">press HERE to RETRY </a>");  
.p  
ri  
nt  
ln Statement stmt2=con.createStatement();  
(“ S String s=”select cost from book where  
O title=”+title+””; ResultSet  
R rs1=stmt2.executeQuery(s);  
R int flag1=0;  
Y while(rs1.next())  
I  
N flag1=1;  
V x=Integer.parseInt(rs1.getStrin  
A g(1)); amount=count*x;  
L  
I out.println("AMOUNT  
I :"+amount+"  
D :"+amount+"  
D Statement stmt1=con.createStatement();  
I  
D stmt1.executeUpdate ("insert into details  
T (“+id+”, “+title+”, “+amount+”, “+date+”, “+cno+””); out.println (“YOU  
R ORDER HAS TAKEN<br>”);  
Y  
A  
G  
A  
I  
N  
I  
D  
<  
b
```

```
if(flag1==0)
```

```
{
```

```
    out.println("SORRY INVALID BOOK TRY AGAIN <br><br>");
```



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LOGIN ID :

PASSWORD :

TITLE :

NO. OF BOOKS :

DATE :

CREDIT CARD NUMBER :

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