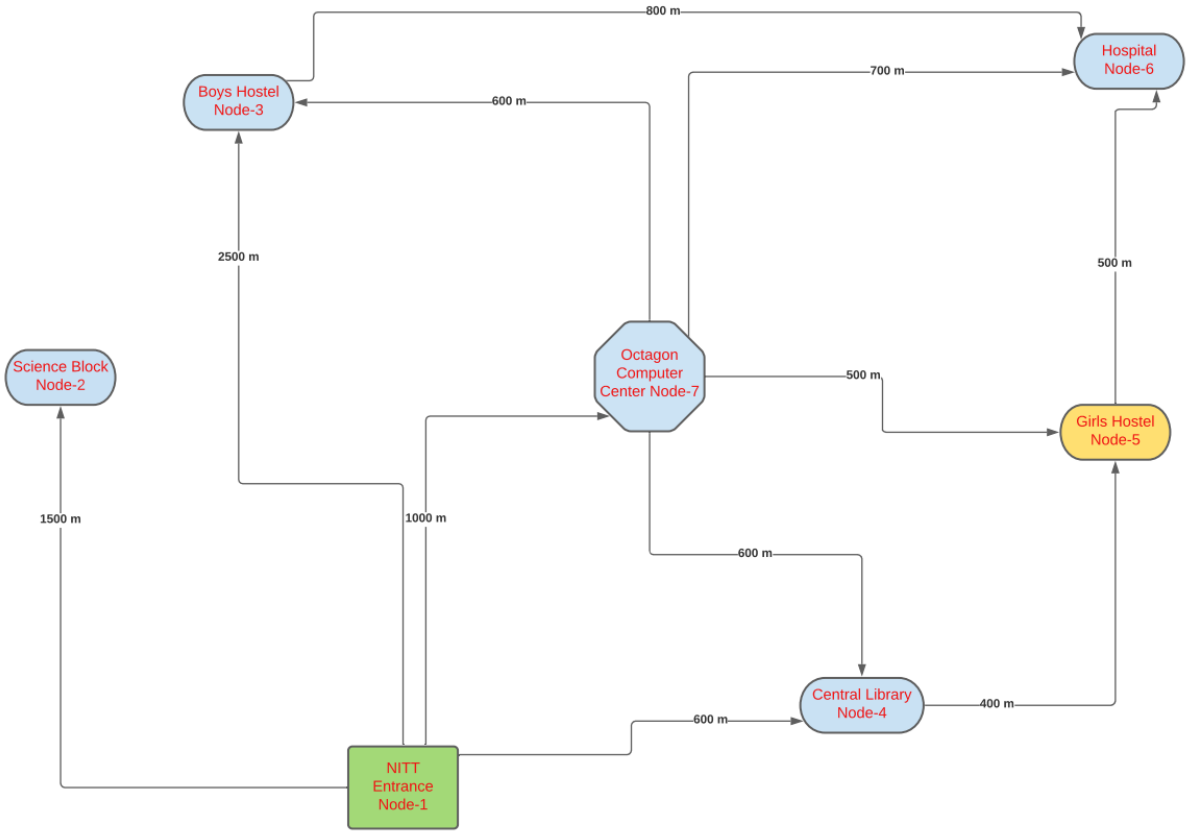
**********GRAPH**********




```
#include<stdio.h>
#define initially 10000
#define fix 1
#define no -1
#define tmp 0


int node;
int adjacent[10][10];
int pre[10];
int pathlen[10];
int state[10];
void Path(int a, int b )
```

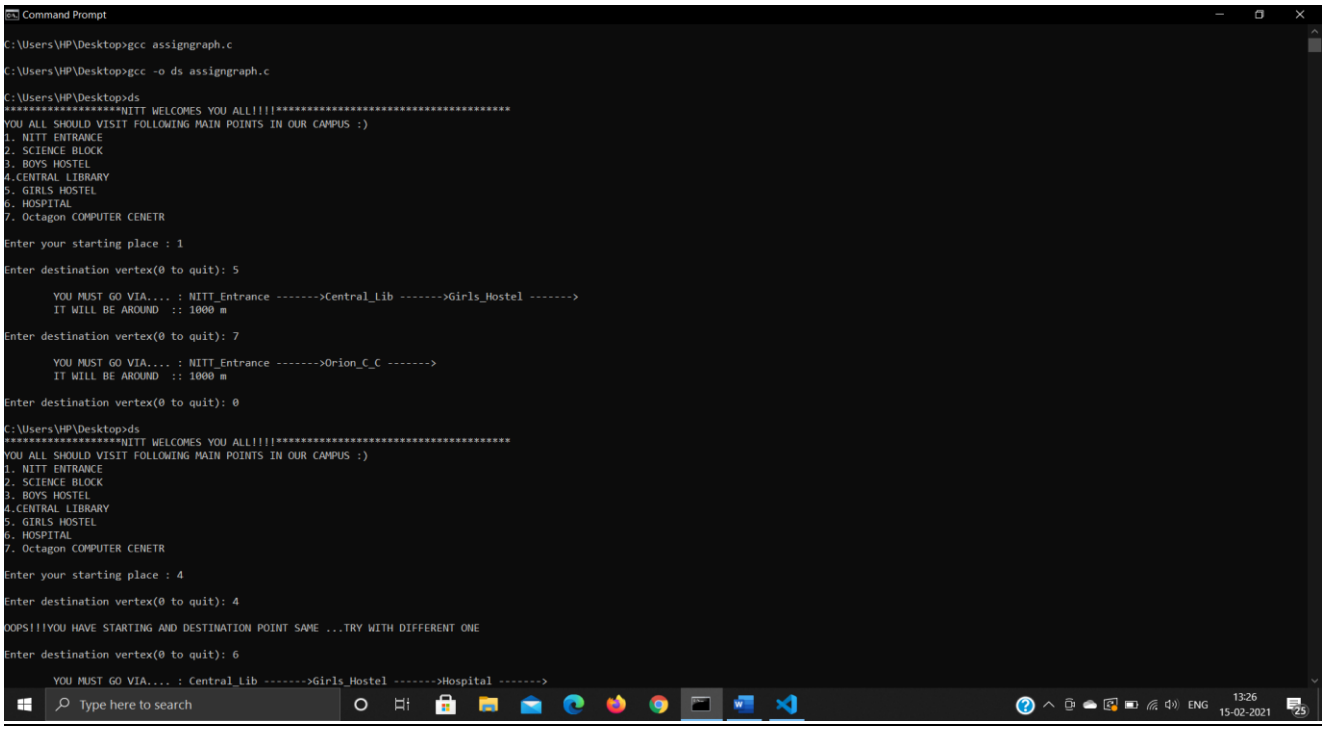
```
{
   int p[10];
   int i,f;
   int sdistance = 0,count=0;
   while( b != a )
   {
      count++;
      p[count] = b;
      f = pre[b];
      sdistance += adjacent[f][b];
      b = f;
   }
   count++;
   p[count]=a;
   char
name[7][14]={"NITT_Entrance","Science_Block","Boys_Hostel","Central_Lib","Girls_Hostel","Hospita
l","Orion_C_C"};
   printf("\n\tYOU MUST GO VIA.... : ");
   for(i=count; i>=1; i--)
   {
      printf("%s ",name[p[i]-1]);
      printf("------->");
   }
   printf("\n\tIT WILL BE AROUND  :: %d m\n", sdistance);
}
int temp( )
{
   int i , start = initially , j = no;
   for(i=0;i<node;i++)
   {
      if(state[i] == tmp && pathlen[i] < start)
      {
```

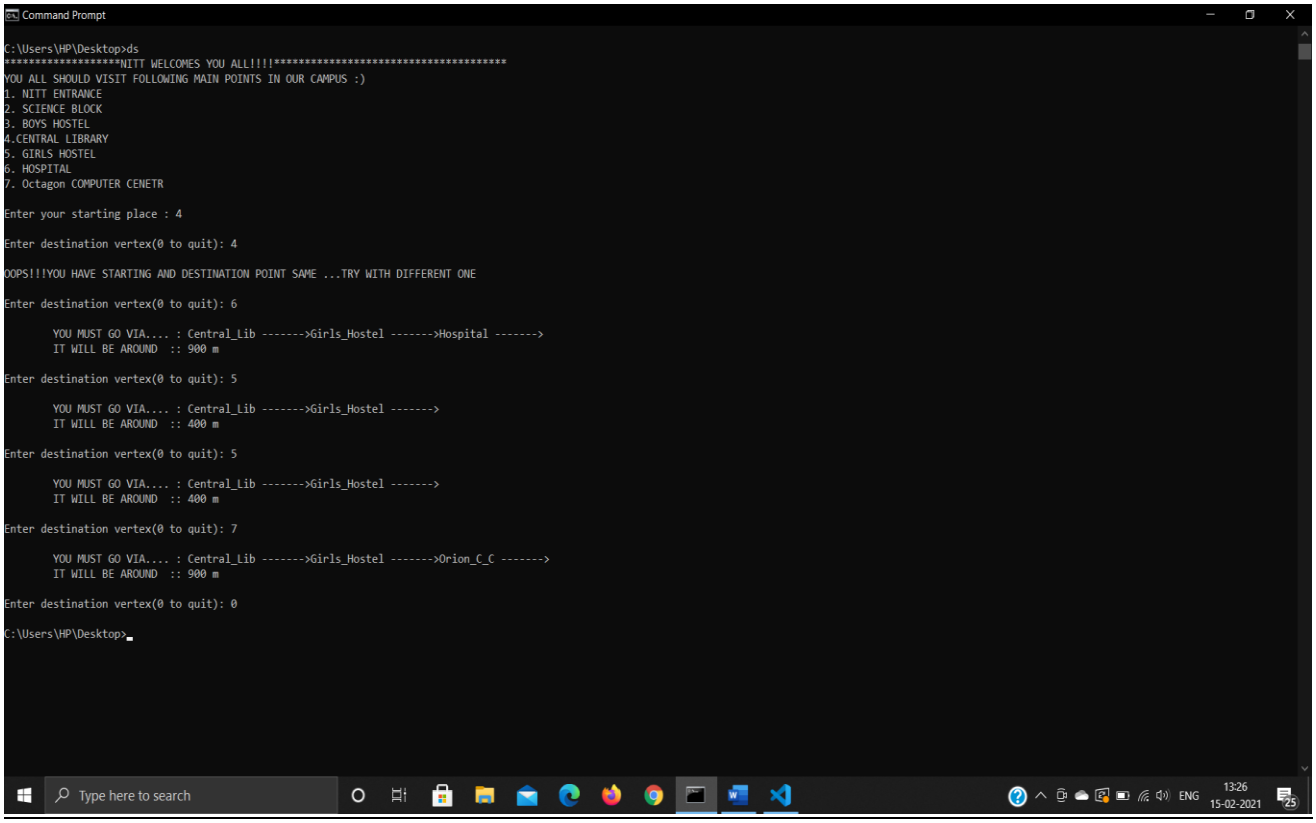
```
            start = pathlen[i];
            j = i;
        }
    }
    return j;
}
void Dks( int a)
{
    int i,curr;
    for(i=0; i<node; i++)
    {
        pre[i] = no;
        pathlen[i] = initially;
        state[i] = tmp;
    }
    pathlen[a] = 0;
    while(1)
    {
        curr = temp( );
        if( curr == no )
            return;
        state[curr] = fix;
        for(i=0; i<node; i++)
        {
            if ( adjacent[curr][i] !=0 && state[i] == tmp )
            {
                if( pathlen[curr] + adjacent[curr][i] < pathlen[i] )
                {
                    pre[i] = curr;
                    pathlen[i] = pathlen[curr] + adjacent[curr][i];
                }
```

```
            }
        }
    }
}
void graph()
{
    node=8;
    adjacent[1][2]=1500;
    adjacent[1][3]=2500;
    adjacent[1][4]=600;
    adjacent[1][7]=1000;
    adjacent[2][1]=1500;
    adjacent[3][1]=2500;
    adjacent[3][6]=800;
    adjacent[3][7]=600;
    adjacent[4][1]=600;
    adjacent[4][5]=400;
    adjacent[5][4]=400;
    adjacent[5][6]=500;
    adjacent[5][7]=500;
    adjacent[6][3]=800;
    adjacent[6][5]=500;
    adjacent[6][7]=700;
    adjacent[7][1]=1000;
    adjacent[7][3]=600;
    adjacent[7][5]=500;
}
int main()
{
    int a,b;
    graph();
```

```
   printf("*******************NITT WELCOMES YOU
ALL!!!!*************************************\n");
   printf("YOU ALL SHOULD VISIT FOLLOWING MAIN POINTS IN OUR CAMPUS :)");
   printf("\n1. NITT ENTRANCE");
   printf("\n2. SCIENCE BLOCK");
   printf("\n3. BOYS HOSTEL");
   printf("\n4.CENTRAL LIBRARY");
   printf("\n5. GIRLS HOSTEL");
   printf("\n6. HOSPITAL");
   printf("\n7. Octagon COMPUTER CENETR \n");
   printf("\nEnter your starting place : ");
   scanf("%d",&a);
   Dks(a);
   while(1)
   {
      printf("\nEnter destination vertex(0 to quit): ");
      scanf("%d",&b);
      if(b == 0)
         break;
      if(b < 0 || b >= node )
         printf("\nSORRY !!!DESTINATION DOES NOT EXISTS..\n");
      else if(b == a)
         printf("\nOOPS!!!YOU HAVE STARTING AND DESTINATION POINT SAME ...TRY WITH
DIFFERENT ONE \n");
      else if( pathlen[b] == initially )
         printf("\nSORRY!!NO SUCH IS MADE IN THIS GRAPH OF NITT....\n");
      else
         Path(a,b);
   }
   return 0;
}
```

Output


Command Prompt
C:\Users\HP\Desktop>gcc assigngraph.c
C:\Users\HP\Desktop>gcc -o ds assigngraph.c
C:\Users\HP\Desktop>ds
******************NITT WELCOMES YOU ALL!!!!************************************
YOU ALL SHOULD VISIT FOLLOWING MAIN POINTS IN OUR CAMPUS :)
1. NITT ENTRANCE
2. SCIENCE BLOCK
3. BOYS HOSTEL
4.CENTRAL LIBRARY
5. GIRLS HOSTEL
6. HOSPITAL
7. Octagon COMPUTER CENETR
Enter your starting place : 1
Enter destination vertex(0 to quit): 5
YOU MUST GO VIA.... : NITT_Entrance ------->Central_Lib ------->Girls_Hostel ------->
IT WILL BE AROUND :: 1000 m
Enter destination vertex(0 to quit): 7
YOU MUST GO VIA.... : NITT_Entrance ------->Orion_C_C ------->
IT WILL BE AROUND :: 1000 m
Enter destination vertex(0 to quit): 0
C:\Users\HP\Desktop>ds
******************NITT WELCOMES YOU ALL!!!!************************************
YOU ALL SHOULD VISIT FOLLOWING MAIN POINTS IN OUR CAMPUS :)
1. NITT ENTRANCE
2. SCIENCE BLOCK
3. BOYS HOSTEL
4.CENTRAL LIBRARY
5. GIRLS HOSTEL
6. HOSPITAL
7. Octagon COMPUTER CENETR
Enter your starting place : 4
Enter destination vertex(0 to quit): 4
OOPS!!!YOU HAVE STARTING AND DESTINATION POINT SAME ...TRY WITH DIFFERENT ONE
Enter destination vertex(0 to quit): 6
YOU MUST GO VIA.... : Central_Lib ------->Girls_Hostel ------->Hospital ------->
Type here to search
ENG
13:26
15-02-2021


Command Prompt
C:\Users\HP\Desktop>ds
********************NITT WELCOMES YOU ALL!!!!************************************
YOU ALL SHOULD VISIT FOLLOWING MAIN POINTS IN OUR CAMPUS :)
1. NITT ENTRANCE
2. SCIENCE BLOCK
3. BOYS HOSTEL
4.CENTRAL LIBRARY
5. GIRLS HOSTEL
6. HOSPITAL
7. Octagon COMPUTER CENETR
Enter your starting place : 4
Enter destination vertex(0 to quit): 4
OOPS!!!YOU HAVE STARTING AND DESTINATION POINT SAME ...TRY WITH DIFFERENT ONE
Enter destination vertex(0 to quit): 6
YOU MUST GO VIA.... : Central_Lib ------->Girls_Hostel ------->Hospital ------->
IT WILL BE AROUND :: 900 m
Enter destination vertex(0 to quit): 5
YOU MUST GO VIA.... : Central_Lib ------->Girls_Hostel ------->
IT WILL BE AROUND :: 400 m
Enter destination vertex(0 to quit): 5
YOU MUST GO VIA.... : Central_Lib ------->Girls_Hostel ------->
IT WILL BE AROUND :: 400 m
Enter destination vertex(0 to quit): 7
YOU MUST GO VIA.... : Central_Lib ------->Girls_Hostel ------->Orion_C_C ------->
IT WILL BE AROUND :: 900 m
Enter destination vertex(0 to quit): 0
C:\Users\HP\Desktop>
Type here to search
ENG
13:26
15-02-2021