C PROGRAMMING ASSIGNMENT: 8

DATE: 18.11.21

SUBMITTED BY: -

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BRANCH: CSE

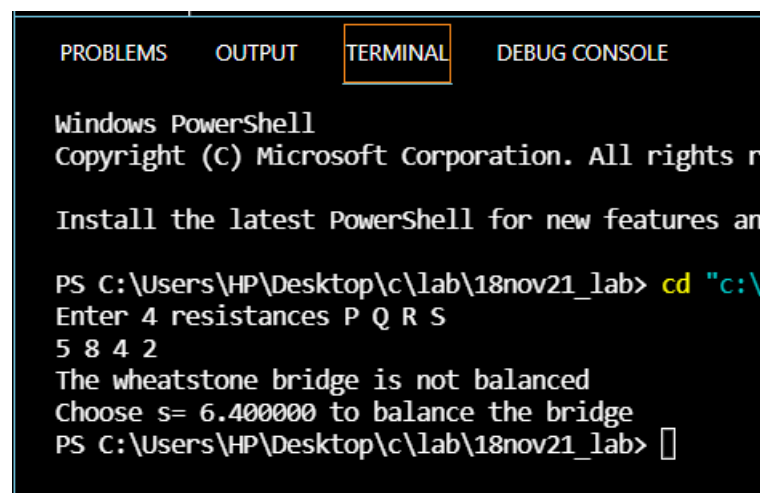SECTION: B22

ROLL NO.: 21052258

Program 1: Write a program to display whether the wheatstone bridge is balanced or not.

Code:

```c
#include <stdio.h>
int main(int argc, char const *argv[])
{
    float p, q, r, s;
    printf("Enter 4 resistances P Q R S\n");
    scanf("%f %f %f %f", &p, &q, &r, &s);
    if (p / q == r / s)
    {
        printf("The wheatstone bridge is balanced");
        return 0;
    }
    printf("The wheatstone bridge is not balanced\n");
    s = (r * q) / p;
    printf("Choose s= %f to balance the bridge", s);
    return 0;
}
```

Output:

```
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PS C:\Users\HP\Desktop\c\lab\18nov21_lab> cd "c:\
Enter 4 resistances P Q R S
5 8 4 2
The wheatstone bridge is not balanced
Choose s= 6.400000 to balance the bridge
PS C:\Users\HP\Desktop\c\lab\18nov21_lab>
```
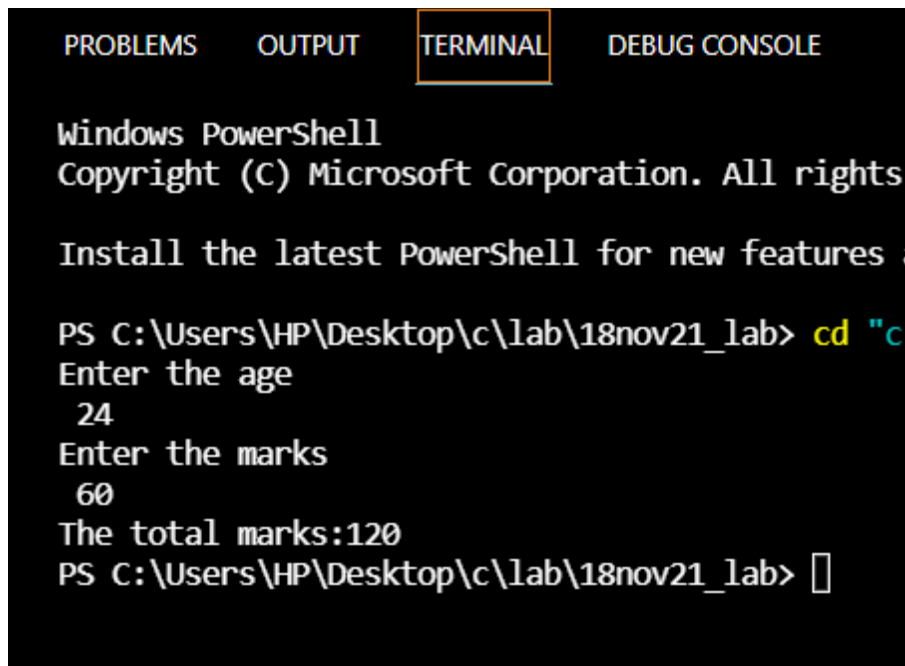
Program 2: Write a program to give extra 60 grace marks if age is below 50 else give 40 marks each i.e., all will get at least 40 marks and people with age below 50 will get additional 20 marks

Code:

```c
#include <stdio.h>
int main(int argc, char const *argv[])
{
    int age, marks;
    printf("Enter the age\n ");
    scanf("%d", &age);
    printf("Enter the marks\n ");
    scanf("%d", &marks);
    marks = marks + 40;
    if (age <= 50)
    {
        marks = marks + 20;
    }
    printf("The total marks:%d\n", marks);

    return 0;
}
```

Output:

ut:

Program 3: Write a program if basic salary is < 1500$, then HRA=10% and DA=40% of basic salary else HRA= 500$ and DA=50% of basic salary.Find the gross salary.

Code:

```c
#include <stdio.h>
int main(int argc, char const *argv[])
{
    float bs, hra, da, gs;
    printf("Enter basic salary\n ");
    scanf("%f", &bs);
    if (bs < 1500)
    {
        hra = bs * (10 / 100.);
        da = bs * (40 / 100.);
    }
    else
    {
        hra = 500;
        da = bs * (50 / 100);
    }
    gs = bs + hra + da;
    printf("Gross salary:%f", gs);

    return 0;
}
```

Output:

```
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PS C:\Users\HP\Desktop\c\lab\18nov21_lab> cd "c:
deRunnerFile }
Enter basic salary
 5000
Gross salary:5500.000000
PS C:\Users\HP\Desktop\c\lab\18nov21_lab> []
```
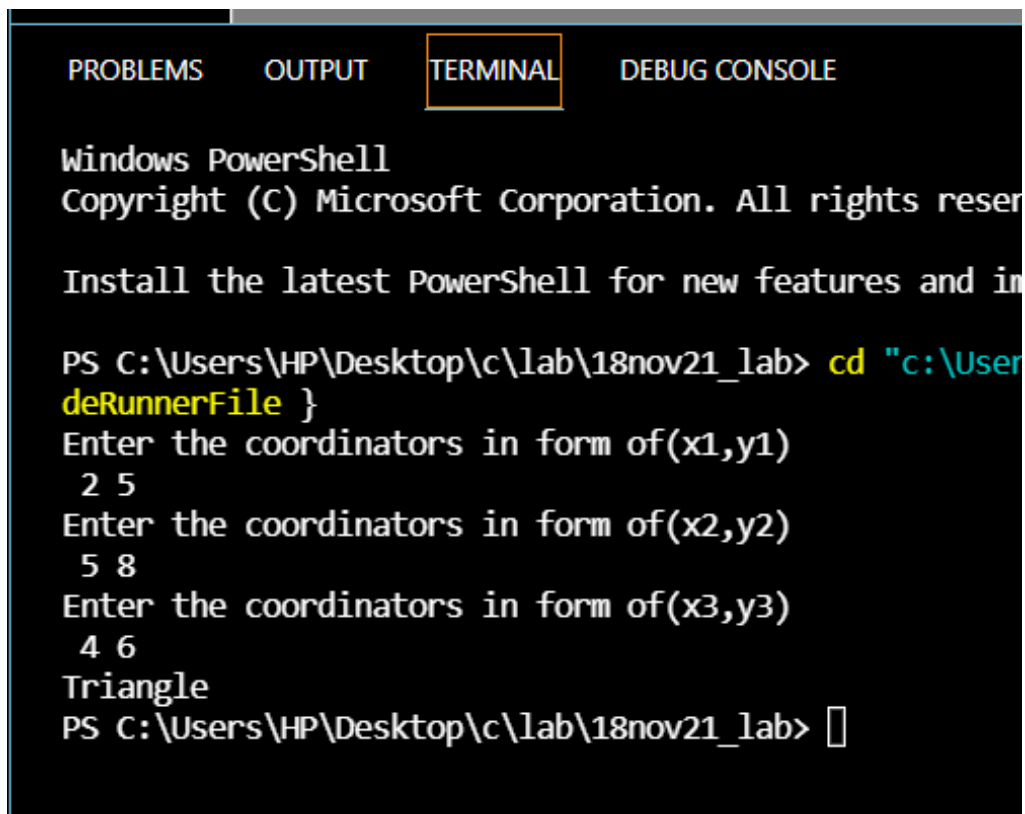
Code:

```c
#include <stdio.h>
int main(int argc, char const *argv[])
{
    int m1, m2, m3, x1, x2, x3 , y1, y2, y3;
    printf("Enter the coordinators in form of(x1,y1)\n ");
    scanf("%d %d", &x1, &y1);
    printf("Enter the coordinators in form of(x2,y2)\n ");
    scanf("%d %d", &x2, &y2);
    printf("Enter the coordinators in form of(x3,y3)\n ");
    scanf("%d %d", &x3, &y3);

    m1 = (y2 - y1) / (x2 - x1);
    m2 = (y3 - y2) / (x3 - x2);
    m3 = (y1 - y3) / (x1 - x3);
    if (m1 != m2 && m2 != m3 && m3 != m1)
    {
        printf("Triangle");
    }
    else
    {
        printf("Not a triangle");
    }

    return 0;
}
```

Output:


```
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PS C:\Users\HP\Desktop\c\lab\18nov21_lab> cd "c:\User
deRunnerFile }
Enter the coordinators in form of(x1,y1)
 2 5
Enter the coordinators in form of(x2,y2)
 5 8
Enter the coordinators in form of(x3,y3)
 4 6
Triangle
PS C:\Users\HP\Desktop\c\lab\18nov21_lab> []
```

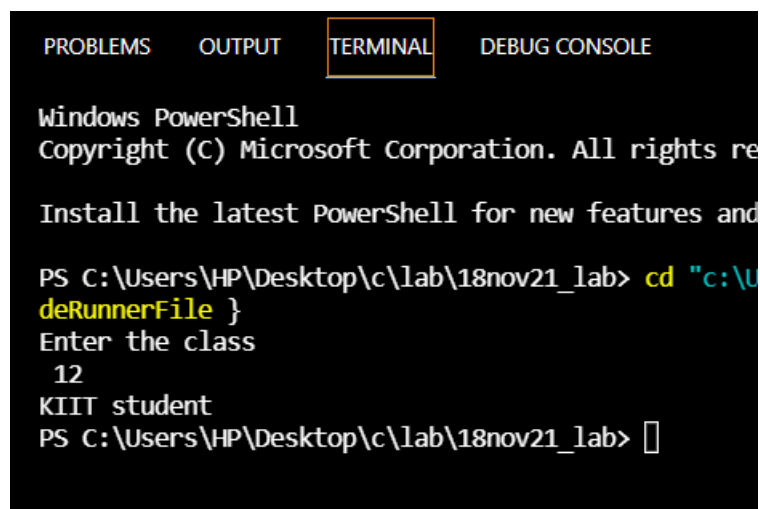**Program 5:** Write a program to print 'kiit student' if you are in class 1 to class 12 else print kiit univesity student.

Code:

```c
#include <stdio.h>
int main(int argc, char const *argv[])
{
    int c;
    printf("Enter the class\n ");
    scanf("%d", &c);
    if (c <= 12)
    {
        printf("KIIT student");
    }
    else
    {
        printf("KIIT university student");
    }

    return 0;
}
```

Output:

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PS C:\Users\HP\Desktop\c\lab\18nov21_lab> cd "c:\U
deRunnerFile }
Enter the class
 12
KIIT student
PS C:\Users\HP\Desktop\c\lab\18nov21_lab> []
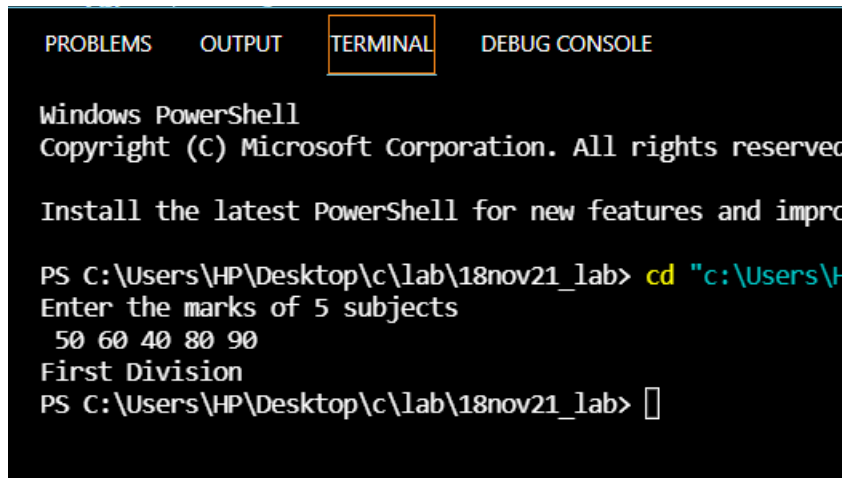
Program 6: *Write a program to print grades inputting marks of 5 subjects.*

Code:

```c
#include <stdio.h>
/* */
int main(int argc, char const *argv[])
{
    int m1,m2,m3,m4,m5,per ;
    printf("Enter the marks of 5 subjects\n ");
    scanf("%d %d %d %d %d", &m1,&m2,&m3,&m4,&m5);
    per= (int) (m1+m2+m3+m4+m5+4.9)/5;
    if (per >= 60)
    {
        printf("First Division");
    }
    if (per >= 50 && per<60 )
    {
        printf("Second Division");
    }
    if (per >= 40 && per<50 )
    {
        printf("Third Division");
    }
    if (per <= 40)
    {
        printf("Fail");
    }


    return 0;
}
```

Output:


```
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PS C:\Users\HP\Desktop\c\lab\18nov21_lab> cd "c:\Users\H
Enter the marks of 5 subjects
 50 60 40 80 90
First Division
PS C:\Users\HP\Desktop\c\lab\18nov21_lab>
```

Program 7: Wriote a program to enter score of 10 cricket players and countnumber of players scored century. Discard the -ve score if you enter by mistake.

Code:

```c
#include<stdio.h>
int main(int argc, char const *argv[])
{
    int score, i=0,count=0;

    again:
    printf("\n Enter the score of next player no %d =",i);
    scanf("%d",&score);
    if(score<0) goto again;

    if(score>=100)
        count++;
    i++;
    if(i<10) goto again;
    printf("Total no of players made century = %d",count);
    return 0;
}
```

Output:

```
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PS C:\Users\HP\Desktop\c\lab\18nov21_lab> cd "c:\
deRunnerFile }

 Enter the score of next player no 0 =50

 Enter the score of next player no 1 =40

 Enter the score of next player no 2 =80

 Enter the score of next player no 3 =60

 Enter the score of next player no 4 =100

 Enter the score of next player no 5 =123

 Enter the score of next player no 6 =45

 Enter the score of next player no 7 =153

 Enter the score of next player no 8 =140

 Enter the score of next player no 9 =52
Total no of players made century = 4
PS C:\Users\HP\Desktop\c\lab\18nov21_lab> 20
```
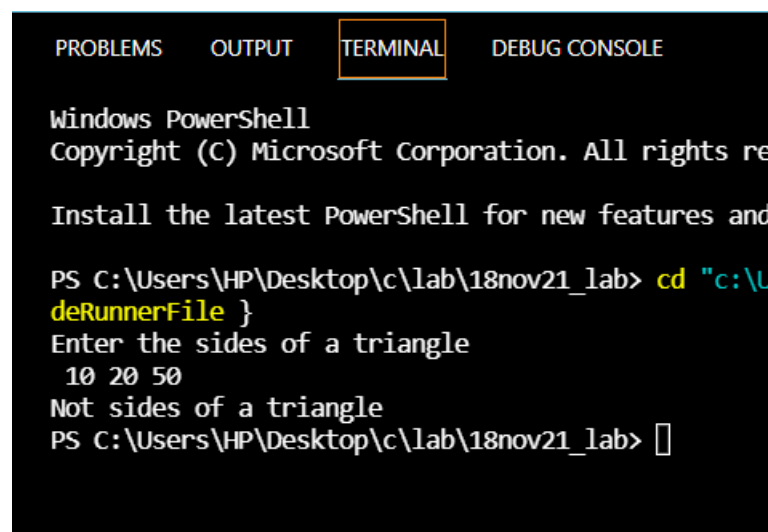
Program 8: Write a program given three inputs a,b,c check whether they are sides of a triangle or not .

Code:

```c
#include <stdio.h>
int main(int argc, char const *argv[])
{
    int a,b,c;
    printf("Enter the sides of a triangle\n ");
    scanf("%d %d %d", &a,&b,&c);
    if ((a+b)>c && (b+c)>a && (c+a)>b)
    {
        printf("Sides of a triangle");
    }
    else{
        printf("Not sides of a triangle");


    }


    return 0;
}
```

Output:

```
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PS C:\Users\HP\Desktop\c\lab\18nov21_lab> cd "c:\U
deRunnerFile }
Enter the sides of a triangle
 10 20 50
Not sides of a triangle
PS C:\Users\HP\Desktop\c\lab\18nov21_lab> 
```

Code:

```c
#include <stdio.h>
int main(int argc, char const *argv[])
{
    int pass;
    char usern;
    printf("Enter the Username\n ");
    scanf("%c", &usern);
    printf("Enter the Password\n ");
    scanf("%d", &pass);
    if (usern == 'a')
    {
        if (pass == 12345)
        {
            printf("Login successful\n");
        }
        else
        {
            printf("Login failed\n");
        }
    }
    else
    {
        printf("Wrong username");
    }

    return 0;
}
```

Program 10: /*write a program to display whether a vehicle is moving with constant velocity/acceleration deceleration   Input: a*/

Code:

```c
#include <stdio.h>
int main(int argc, char const *argv[])
{
    int a;
    printf("Enter the value of a\n ");
    scanf("%d", &a);

    if (a>0)
    {
        printf("Constant velocity\n");
    }
    if (a==0)
    {
        printf("accelerated velocity\n");
    }
    if(a<0)
    {
        printf("Decceleration velocity\n");
    }


    return 0;
}
```

Output:

```
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PS C:\Users\HP\Desktop\c\lab\18nov21_lab> cd "c:\
Enter the value of a        .
 50
Constant velocity
PS C:\Users\HP\Desktop\c\lab\18nov21_lab> []
```

Program 11: /*Write a program to find greatest no*/

Code:

```c
#include <stdio.h>
int main(int argc, char const *argv[])
{
    int a, b, c;
    printf("Enter the 3 nos\n ");
    scanf("%d %d %d", &a, &b, &c);

    if (a > b && a > c)
    {
        printf("%d is greatest", a);
    }
    if (b > a && b > c)
    {
        printf("%d is greatest", b);
    }
    if (c > b && c > a)
    {
        printf("%d is greatest", c);
    }

    return 0;
}
```

Output:

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PS C:\Users\HP\Desktop\c\lab\18nov21_lab> cd "c:\
deRunnerFile }
Enter the 3 nos
 10 50 400
400 is greatest
PS C:\Users\HP\Desktop\c\lab\18nov21_lab>

Program 12: /*Concave mirror*/

Code:

```c
#include <stdio.h>
int main(int argc, char const *argv[])
{
    int a;
    printf("Enter 1 for position of object at infinity\n ");
    printf("Enter 2 for position of object beyond C\n ");
    printf("Enter 3 for position of object at C\n ");
    printf("Enter 4 for position of object Between c and F\n ");
    printf("Enter 5 for position of object at F\n ");
    printf("Enter your choice\n ");
    scanf("%d", &a);
    if (a == 1)
    {
        printf("Position of image at F\nSize of image:Highly
diminished\nNature of image:Real and inverted");
    }
    if (a == 2)
    {
        printf("Position of image Between C and F\nSize of image:
diminished\nNature of image:Real and inverted");
    }
    if (a == 3)
    {
        printf("Position of image at C\nSize of image:Same
size\nNature of image:Real and inverted");
    }
    if (a == 4)
    {
        printf("Position of image Beyond C\nSize of
image:Enlarged\nNature of image:Real and inverted");
```

```c
    }
    if (a == 5)
    {
        printf("Position of image at infinity\nSize of image:Highly
Enlarged\nNature of image:Real and inverted");
    }
    else
    {
        printf("Invalid choice");
    }


    return 0;
}
```

Output:

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```
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PS C:\Users\HP\Desktop\c\lab\18nov21_lab> cd "c:\Use
deRunnerFile }
Enter 1 for position of object at infinity
 Enter 2 for position of object beyond C
 Enter 3 for position of object at C
 Enter 4 for position of object Between c and F
 Enter 5 for position of object at F
 Enter your choice
 4
Position of image Beyond C
Size of image:Enlarged
Nature of image:Real and invertedInvalid choice
PS C:\Users\HP\Desktop\c\lab\18nov21_lab>
```

Program 13: /*Find the output*/

Code:

```c
#include <stdio.h>

int main()
{
    int a = 0, b;

    if (a < 1)
        printf("XXX"); // Block L1
    printf("YYY\n");    // L2

    if (a > 1)
        printf("000"); // Block
    printf("111 \n");

    if (a = 1)
        printf("Comp Sc");     // Block L1
    printf(" Engineering \n"); // L2

    if (b = a++)
        printf("\nComp Sc");  // Block L1
    printf(" Engineering\n"); // L2

    if (b = ++a)
        printf("\nComp Sc");  // Block L1
    printf(" Engineering\n"); // L2

    return 0;
}
```

Output:

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```
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PS C:\Users\HP\Desktop\c\lab\18nov21_lab> cd
deRunnerFile }
XXXYYY
111
Comp Sc Engineering

Comp Sc Engineering

Comp Sc Engineering
PS C:\Users\HP\Desktop\c\lab\18nov21_lab> 
```