Assignments

1.Wap to check for a valid triangle

```
#include<stdio.h>
int main()
{
   int a,b,c;
   printf("Enter three sides of triangle:");
   scanf("%d %d %d",&a,&b,&c);
   if((a+b>c)&&(a+c>b)&&(b+c>a)){
      printf("Valid triangle \n");
   }
   printf("The program executed successfully");
   return 0;
}
```

Output:

```
Enter three sides of triangle: 5 5 55 5 5
Valid triangle
The program executed successfully
```

2.Wap to check if a character is an alphabet

```
#include<stdio.h>
int main()
{
   char ch;
   printf("Enter the character:");
   scanf("%c",&ch);
   if((ch>='A' && ch<='Z') || (ch>='a' && ch<='z'))
      printf("Character is an alphabet \n");
   printf("Program executed successfully");
   return 0;
}
```

Output:

Enter the character:q

Character is an alphabet

Program executed successfully

3.Wap to check if a year is a leap year

```
#include<stdio.h>
int main()
{
   int year;
   printf("Enter the year:");
   scanf("%d",&year);
   if((year%4==0 && year%100!=0)||(year%400==0)){
      printf("The year is a leap year \n");
   }
   printf("Program executed successfully");
   return 0;
}
```

Output:

Enter the year:2000

The year is a leap year

Program executed successfully

4.Wap to check if a number is divisible by 3.

```
#include<stdio.h>
int main()
{
   int num;
   printf("Enter the number:");
```

```
    scanf("%d",&num);
    if(0==num%3){
        printf("The number is divisible by 3 \n");}
    printf("The program execution finished \n");
}
```

Output:

```
Enter the number:30
The number is divisible by 3
The program execution finished
```

5.Wap ro check for uppercase characters

```
#include<stdio.h>
int main()
{
    char ch;
    printf("Enter the character:");
    scanf("%c",&ch);
    if((ch>='A' && ch<='Z'))
        printf("Character is Uppercase \n");
    printf("Program executed successfully");
    return 0;
}
```

Output:

```
Enter the character:Z
Character is Uppercase
Program executed successfully
```

6.Wap to check for special characters

```
#include<stdio.h>
```

```
int main()
{
   char ch;
   printf("Enter the character:");
   scanf("%c",&ch);
   if(!isalnum(ch))
      printf("Character is special case \n");
   printf("Program executed successfully");
   return 0;
}
```

Output:

```
Enter the character:@
Character is special case
```

```
//Wap to check largest of three numbers
//inputs:a,b,c
//comparison:> and &&
//control statements:if ...else if
//how many variables:3
//datatype of variable:int
//preffered scope of variable:local
#include<stdio.h>
int main()
{
   int a,b,c;
   printf("Enter the number:");
   scanf("%d %d %d",&a,&b,&c);
   if(a>b && a>c){
      printf("A is greater \n");
   }
```

```
    else if(b>a && b>c){
        printf("B is greater \n");
    }
    else
    {
        printf("C is greater \n");
    }
    return 0;
}
```

Output:

Enter the number:30 55 20

B is greater

```
//Wap to determine the grade of a student base on following
//Grade A=marks>=90
//Grade B =marks>=80 and marks<90
//Grade C =marks>=70 and marks<80
//Grade D =marks>=60 and marks<70
//Grade F =marks<=60

//inputs:marks
//comparison:>= and &&
//control statements:if ...else if
//how many variables:1
//datatype of variable:int
//preffered scope of variable:local
#include<stdio.h>
int main()
{
    int marks;
```

```
    printf("Enter the marks:");
    scanf("%d",&marks);
    if(marks>=90){
        printf("A Grade \n");
    }
    else if(marks>=80 && marks<90){
        printf("B Grade \n");
    }
    else if(marks>=70 && marks<80){
        printf("C Grade \n");
    }
    else if(marks>=60 && marks<70){
        printf("D Grade \n");
    }
    else if(marks<=60 && marks>=0){
        printf("F Grade \n");
    }
    else{
        printf("Negative marks not allowed in grading");
    }
    return 0;
}
```

Output:

Enter the marks:80

B Grade

//Requirements • In this challenge, you are to create a C program that calculates your weekly pay The program should ask the user to enter the number of hours worked in a week via the keyboard • The program should display as output the gross pay, the taxes, and the net pay • The following assumptions should be made: • Basic pay rate = $12.00/hr • Overtime (in excess of 40 hours) = time and a half • Tax rate: •15% of the first $300 •20% of the next $150 •25% of the rest • You will need to utilize if/else statements

```
//inputs:hours_worked
//comparison:<=
//control statements:if else
//how many variables:1
//datatype of variable:int ,float
//preffered scope of variable:local

#include<stdio.h>
int main()
{
   float basic_pay=12,overtime_pay=1.5;
   float tax_rate1=0.15;
   float tax_rate2=0.20;
   float tax_rate3=0.25;
   int regular_hours=40;
   float hours_worked,gross_pay,net_pay,taxes;
   printf("Enter the number of hours worked:");
   scanf("%f",&hours_worked);
   if(hours_worked<=regular_hours){
      gross_pay=hours_worked*basic_pay;
   }
   else{
      gross_pay=(regular_hours*basic_pay)+((hours_worked-
regular_hours)*basic_pay*overtime_pay);
   }
   if(gross_pay<=300){
      taxes=gross_pay*tax_rate1;
   }
   else if(gross_pay<=450){
      taxes=(300*tax_rate1)+((gross_pay-30)*tax_rate2);
   }
```

```
    else{
        taxes=(300*tax_rate1)+(150*tax_rate2)+((gross_pay-30)*tax_rate3);
    }
    net_pay=gross_pay-taxes;
    printf("Gross pay:%f \n",gross_pay);
    printf("Taxes:%f \n",taxes);
    printf("Net pay:%f \n",net_pay);
    return 0;
}
```

Output:

```
Enter the number of hours worked:54
Gross pay:732.000000
Taxes:250.500000
Net pay:481.500000
```

```
//WAP using switch case for calculator
//when you enter +=Addition of two numbers should happen
//when you enter -=subtraction of two numbers should happen
//when you enter *=multiplication of two numbers should happen
//when you enter /=division of two numbers should happen
//when you enter %=modulus of two numbers should happen
#include<stdio.h>
int main()
{
    int n1,n2;
    char operator;
    printf("Enter the number1:");
    scanf("%d",&n1);
    printf("Enter the number2:");
```

```
scanf("%d",&n2);
printf("Enter the operation(+,-,*,/,%):");
scanf(" %c", &operator);
switch(operator){
   case '+':
      printf("addition is:%d\n",n1+n2);
      break;
   case '-':
      printf("subtraction is:%d\n",n1-n2);
      break;
   case '*':
      printf("multiplication is:%d\n",n1*n2);
      break;
   case '/':
      if(n2!=0){
      printf("division is:%d\n",n1/n2);
      }else{
         printf("Error");
      }
      break;
   case '%':
      if(n2!=0){
      printf("modulus is:%d\n",n1%n2);
      }else{
         printf("Error");
      }
      break;
   default:
      printf("Invalid operator.");
}
return 0;
```

```
}
```

Output:

```
Enter the number1:10
Enter the number2:20
Enter the operation(+,-,*,/,%):*
multiplication is:200
```

```
//WAP to count number of digits in a while loop
#include<stdio.h>
int main()
{
   int num,count=0;
   printf("Enter the number:");
   scanf("%d",&num);
   if(num==0){
      count=1;
   }else{
      while(num!=0){
         num=num/10;
         count++;
      }
   }
   printf("Count is:%d\n",count);
   return 0;
}
```

Output:

```
Enter the number:1256
Count is:4
```

WAP to calculate the electricity bill based on the formula mentioned below Calculations To calculate your electricity bill, follow these steps: Watts = (amps) x (volts) Kilowatt-hours = (watts) x (usage) / 1000. Cost = (kilowatt-hours) x (electricity rate) Subtract the current meter reading from the previous month's reading to find the energy consumption. Multiply the units consumed by the per-unit charges based on the applicable slabs (e.g., Rs. 4.22 for 1-100 units, Rs. 5.02 for 101-200 units). Add the fixed charge and energy duty (e.g., Rs. 40 fixed charge and Rs. 0.15 per unit) to the energy charges. The sum of the energy charges, fixed charge, and energy duty gives you the total bill amount. Example: If you consumed 250 units with the applicable slabs mentioned above, the energy charges would be Rs. 1218. Adding the fixed charge and energy duty, the total bill amount would be Rs. 1296.

```
#include<stdio.h>

int main()

{

   float amps,volt,watts;

   int current_reading,previous_reading,unit;

   float kwh,cost=0,total_bill;

   printf("Enter previous meter reading:");

   scanf("%d",&previous_reading);

   printf("Enter current meter reading:");

   scanf("%d",&current_reading);

   unit=current_reading - previous_reading;

   printf("Enter amps:");

   scanf("%f",&amps);

   printf("Enter voltage:");

   scanf("%f",&volt);

   watts=(amps)*(volt);

   kwh=(watts*unit)/1000;

   if(1<=unit<=100){

      cost=4.22*kwh;

   }

   else if(unit>unit<=200){

      cost=(100*4.22)+(unit-100)*5.02*kwh;

   }
```

```
    else{
        cost=(100*4.22)+(100*5.02)+(unit-200)*6.00*kwh;
    }
    total_bill=cost+40+(0.15*unit);
    printf("total bill is %f",total_bill);
    return 0;
}
```

Output:

```
Enter previous meter reading:0
Enter current meter reading:250
Enter amps:5
Enter voltage:220
total bill is 1238.000000
```

1. WAP to print Fibonacci Series up to a Given Number.

```
#include<stdio.h>
int main(){
    int num,a=0,b=1,next;
    printf("Enter the number:");
    scanf("%d",&num);
    printf("%d",a);
    printf("%d",b);
    while((a+b)<=num){
        next=a+b;
        printf("%d",next);
        a=b;
        b=next;
    }
    return 0;
}
```

Output:

Enter the number:10

0112358

2. WAP to print factorial of a number.

```
#include<stdio.h>
int main(){
   int num,i=1,fact=1;
   printf("Enter the number:");
   scanf("%d",&num);
   while(i<=num){
      fact=fact*i;
      i=i+1;
   }
   printf("Factorial is:%d \n",fact);
   return 0;
}
```

Output:

Enter the number:5

Factorial is:120

3. WAP to check whether the number is Prime or not.

```
#include<stdio.h>
int main()
{
   int i=2,num,temp=0;
   printf("Enter number:");
   scanf("%d",&num);
   while(i<=num/2)
   {
```

```
        if(num%i==0){
            temp++;
            break;
        }
        i++;
    }
    if(temp==0 && num!=1)
    {
        printf("%d is prime",num);
    }
    else{
        printf("%d is not prime",num);
    }
    return 0;
}
```

Output:

```
Enter number:6
6 is not prime
```

4. WAP to print lower case alphabets.

```
#include<stdio.h>
int main(){
    char ch='a';
    while(ch<='z'){
        printf("%c",ch);
        ch++;
    }
        return 0;
}
```

Output:

```
abcdefghijklmnopqrstuvwxyz
```