1) #include <stdio.h>

```
int main()
{
   int score = 80;
   int big = 75;
   if(score > big)
   {
      printf("001 Score is greater than big\n");

   }
   if(score < big)

   {
      score++;
      printf("001 Score is greater than big\n");
   }

   return 0;
}
```

2)WAP to find a number positive and print?

```
#include <stdio.h>

int main()
{
   int num;
   printf("Enter the number:");
   scanf("%d",&num);
   if(num >= 0)
   printf("The number is positive\n");
   printf("the program execution is over\n");

   return 0;
}
```

3)WAP to find a number is even?

```
#include <stdio.h>

int main()
{
   //int num;
   //printf("Enter number:");
   //scanf("%d",&num);
   int num = 98;
   if(num%2 == 0)
   printf("even number");
   return 0;
}
```

4)WAP to check for a valid triangle?

```
int main()
{
   int a,b,c;
   printf("Enter the sides of triangle ie; a,b,c:");
   scanf("%d %d %d",&a,&b,&c);
   if((a+b)>c && (a+c)>b && (b+c)>a)
```

```
   printf("It is a valid triangle");
   return 0;
}
```

5)WAP to check if a character is an alphabet?

```
#include <stdio.h>

int main()
{
   char a;
   printf("enter a character:");
   scanf("%c",&a);
   if((a >= 'A' && a <= 'Z' ) || (a >= 'a' && a <= 'z' ))
   printf("Entered character is an alphabet");
   return 0;
}
```

6)WAP to check if a year is leap year?

```
#include <stdio.h>

int main()
{
   int year;
   printf("Enter the year:");
   scanf("%d",&year);
   if((year%400) == 0)
   {
      printf("It is a leap year");
   }
   else if(year%100 != 0 && year%4 == 0)
   {
      printf("It is a leap year");
   }
   return 0;
}
```

7)WAP to check if a number is divisible by 3?

```
#include <stdio.h>

int main()
{
   int num;
   printf("Enter the num:");
   scanf("%d",&num);
   if((num%3) == 0)


      printf("It is a divisible by 3");
   return 0;
}
```

8)WAP to check for uppercase character?

```
#include <stdio.h>

int main()
{
   char a;
   printf("Enter the character:");
```

```
   scanf("%c",&a);
   if(a>= 'A' && a<= 'Z')
   printf("It is Uppercase character");
   return 0;
}
```

9)WAP to check for special character?

```
#include <stdio.h>

int main()
{
   char a;
   printf("Enter the character:");
   scanf("%c",&a);
  if(a>= 'A' && a<= 'Z' || a>= 'a' && a<= 'z' || a> ='0' && a<='9')
{
   printf("It is not a special character");
   }
   else
   {
   printf("it is a special character");
   }
   return 0;
}
```

10)WAP to find the sign of a number?

```
#include <stdio.h>

int main()
{
   int num,sign;
   printf("enter the value for num1:");
   scanf("%d",&num);
   printf("\n");
   if(num < 0)
   {
      sign == -1;

   }
   else if(num == 0)
   {
      sign =0;
   }
   else
   {
      sign = 1;
   }
   printf("sign of value is %d\n",sign);
   return 0;
}
```

11)wap to determine largest of three numbers

```
//inputs: numbers
//Comparison: >
//Control Statements:  if....else
```

```
//How many Variables: 3
//Datatype of the variable: int
//Prferred Scope of the varible: local
#include <stdio.h>

int main()
{
   int num1,num2,num3;
   printf("Enter 3 numbers:");
   scanf("%d %d %d",&num1,&num2,&num3);
   if(num1 > num2 && num1 > num3)
   {
      printf("%d is greater\n",num1);
   }
   else if(num2 > num1 && num2 > num3)
   {
      printf("%d is greater\n",num2);
   }
   else
   {
      printf("%d is greater\n",num3);
   }

   return 0;
}
```

12)wap to determine the grade of students

```
//inputs: Mark
//Comparison: >= ,>,<,<=
//Control Statements:  if....else
//How many Variables: 1
//Datatype of the variable: int
//Prferred Scope of the varible: local


#include <stdio.h>

int main()
{
   int mark;
   printf("Enter the mark:");
   scanf("%d",&mark);
   if(mark >= 0)
   {
   if(mark >= 90)
   {
      printf("Grade A\n");
   }
   else if(mark >= 80 && mark < 90)
   {
      printf("Grade B\n");
   }
   else if(mark >= 70 && mark < 80)
   {
```

```
      printf("Grade C\n");
   }
    else if(mark >= 60 && mark < 70)
   {
      printf("Grade D\n");
   }
    else if(mark < 60)
   {
      printf("Grade F\n");
   }
   }
   else
   {
      printf("The mark is invalid");

   }

   return 0;
}
```

13)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)

1. Subtract the current meter reading from the previous month's reading to find the energy consumption.

2. 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).

3. Add the fixed charge and energy duty (e.g., Rs. 40 fixed charge and Rs. 0.15 per unit) to the energy charges.

4. 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, volts, watts, kilowatt_hours, rate, cost;
    int usage;  // in hours
    float fixed_charge = 40.0;      // Fixed charge
    float energy_duty_rate = 0.15;  // Energy duty per kilowatt-hour (kWh)

    // Input values
    printf("Enter the current in amperes: ");
    scanf("%f", &amps);

    printf("Enter the voltage: ");
    scanf("%f", &volts);

    printf("Enter the usage hours in a month: ");
    scanf("%d", &usage);

    // Step 1: Calculate watts and kilowatt hours
```

```
    watts = amps * volts;
    kilowatt_hours = (watts * usage) / 1000;

    // Step 2: Determine rate based on kilowatt-hour slabs
    if (kilowatt_hours >= 1 && kilowatt_hours <= 100) {
        rate = 4.22;
    } else if (kilowatt_hours >= 101 && kilowatt_hours <= 200) {
        rate = 5.02;
    } else if (kilowatt_hours > 200) {
        rate = 5.82;
    } else {
        printf("The readings are invalid!\n");
        return 1;
    }

    // Step 3: Calculate total cost
    cost = (kilowatt_hours * rate) + fixed_charge + (kilowatt_hours *
energy_duty_rate);

    // Output the total bill amount
    printf("Total Bill Amount: Rs. %.2f\n", cost);

    return 0;
}
```

14)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

```
#include <stdio.h>

int main() {
    float hours_worked, gross_pay, taxes, net_pay;
    float pay_rate = 12.0, overtime_rate = 1.5 * pay_rate;
    printf("Enter the number of hours worked in a week: ");
    scanf("%f", &hours_worked);
    if (hours_worked > 40) {
        gross_pay = (40 * pay_rate) + ((hours_worked - 40) * overtime_rate);
    } else {
        gross_pay = hours_worked * pay_rate;
    }
    if (gross_pay <= 300) {
        taxes = gross_pay * 0.15;
    } else if (gross_pay <= 450) {
        taxes = (300 * 0.15) + ((gross_pay - 300) * 0.20);
    } else {
        taxes = (300 * 0.15) + (150 * 0.20) + ((gross_pay - 450) * 0.25);
    }
    net_pay = gross_pay - taxes;
    printf("Gross Pay: $%.2f\n", gross_pay);
    printf("Taxes: $%.2f\n", taxes);
    printf("Net Pay: $%.2f\n", net_pay);
```

```
    return 0;
}
```

15)WAP using switch case for calculator?

```
#include <stdio.h>

int main() {
    int num1, num2;
    float res;
    char op;
    printf("Enter the two numbers: ");
    scanf("%d %d", &num1, &num2);
    printf("Enter the operation : ");
    scanf(" %c", &op);

    switch(op) {
        case '+':
            res = num1 + num2;
            break;
        case '-':
            res = num1 - num2;
            break;
        case '*':
            res = num1 * num2;
            break;
        case '/':
            if (num2 != 0) {
                res = num1 / num2;
            } else {
                printf("Error: Division by zero is not allowed.\n");
                return 1;
            }
            break;
```

```
            case '%':
            if (num2 != 0) {
                res = num1 % num2;
            } else {
                printf("Error: Division by zero is not allowed.\n");
                return 1;
            }

            break;
        default:
            printf("Error: Invalid operation.\n");
            return 1;
    }
    printf("Result: %.2f\n", res);

    return 0;
}
```

16)WAP to print even numbers upto a given number

```
#include <stdio.h>

int main() {
    int num;
    printf("Enter number:");
    scanf("%d",&num);
    int i=2;
    printf("Even numbers are: ");
    while(i <= num)
    {
        if(i%2 == 0)
        {
            printf("%d ",i);
        }
```

```
        i++;
    }
    return 0;
}
```

17)WAP to reverse a number

```
#include <stdio.h>

int main() {
    int num;
    printf("Enter number:");
    scanf("%d",&num);
    int rem,rev;
    while(num != 0)
    {
        rem = num%10;
        rev = rem + rev*10;
        num = num/10;
    }
    printf("The reversed number is %d",rev);
    return 0;
}
```

18)WAP to count number of digits in a number

```
#include <stdio.h>

int main() {
    unsigned long int num;
    printf("Enter number:");
    scanf("%ld",&num);
    int count=0;
    while(num != 0)
```

```
{
    num = num/10;
    count++;
}
printf("The number of digits in a number is %d",count);
return 0;
}
```

Assignment with respect to while loop

19)WAP to print Fibonacci Series up to a Given Number.

```
 #include <stdio.h>

int main() {
int num;
printf("Enter number:");
scanf("%d",&num);
int first = 0, second = 1, next = 0;
printf("The fibinocci series is:\n");
while(next <= num)
{
    printf("%d ",next);
    first = second;
    second = next;
    next = first + second;

}
return 0;
}
```

20) WAP to print factorial of a number.

```
#include <stdio.h>

int main() {
    int num;
    printf("Enter number:");
    scanf("%d",&num);
    int i=1,res=1;
    while(i <= num)
    {
       res *= i;
       i++;
    }
    printf("Factorial of %d is %d",num,res);
    return 0;
}
```

21)WAP to check whether the number is Prime or not.

```
#include <stdio.h>

int main() {
    int num;
    printf("Enter number:");
    scanf("%d",&num);
    if (num <= 1)
    {
       printf("%d is not a prime number\n", num);
       return 0;
    }
    int i= 2;
    int isPrime = 1;
    while(i*i <= num)
```

```
        {
            if(num%i == 0)
            {
                isPrime = 0;
                break;
            }

            i++;
        }
        if(isPrime == 1)
        {
            printf("%d is a prime number",num);
        }
        else
        {
            printf("%d is not a prime number",num);
        }
        return 0;
    }
```

22)WAP to print lower case alphabets.

```
#include <stdio.h>

int main() {
    char string[100];
    scanf("%[^\n]",string);
    int i=0;
    printf("Lower cases are:");
    while(string[i] != '\0')
    {
        if(string[i] >= 'a' && string[i] <= 'z')
        {
            printf("%c ",string[i]);
```

```
        }
        i++;
    }
    return 0;
}
```