1.//WAP to check if a number is positive.

```
#include<stdio.h>
int main(){
   int num;
   printf("enter the number\n");
   scanf("%d",&num);
   if(num>0)
      printf("positive number\n");

   printf("execution over");
}
```

---

2. //WAP to check if numbr is even

```
#include<stdio.h>
int main(){
   int num;
   printf("enter the number\n");
   scanf("%d",&num);
   if(0==(num%2)) //industry standard
      printf("even\n");

   printf("execution over");
}
```

3.WAP to check for a valid triangle

```
#include<stdio.h>
void main(){
   int angle1,angle2,angle3;
   printf("enter the angles value\n");
   scanf("%d %d %d",&angle1,&angle2,&angle3);
   if(180==(angle1+angle2+angle3)){
      printf("valid triangle\n");
   }

   printf("execution over");
}
```

4.WAP to check if a char is an alphabet;

```
#include<stdio.h>
void main(){
   char a;
   printf("enter the character\n");
   scanf("%c",&a);
   for(char i=0x61;i<0x7a;i++){
      if(i==a){
         printf("its an alphabet\n");
      }
   }
   printf("execution over");
}
```

5.WAP to check if a year is a leap year;
6.WAP to checkig number is divisible by 3;

```
#include<stdio.h>
#include<stdint.h>
void main(){
   int num,temp;
   printf("enter the number\n");
   scanf("%d",&num);
   temp=num;
   if(0==num%3){
      printf("%d is divisible by 3\n",temp);
   }
   printf("execution over");
}
```

7.WAP to check for uppercase charater;

```
#include<stdio.h>
void main(){
   char a;
   printf("enter the character\n");
   scanf("%c",&a);
   for(char i=0x41;i<0x5a;i++){
      if(i==a){
         printf("its an uppercase\n");
      }
   }
   printf("execution over");
}
```

8.WAP to check for special charater;

```
#include<stdio.h>
void main(){
   char a;
   printf("enter the character\n");
   scanf("%c",&a);
   char i;
   if((a>=0x21&&a<=0x2f)||(a>=0x3a&&a<=0x40)||(a>=0x5b&&a<=0x60)||(a>=0x7b&&a <=0x7e)){
         printf("its a special character\n");

   }
   printf("execution over");
}
```

```
/*
1.WAP to determine largest of the 3 numbers
inputs            :num1, num2, num3
comparison        :>
control statement   :nested if else
no of variables     :3
datatype of variables :int
scope of variable   :local
*/
#include<stdio.h>
void main(){
  int num1,num2,num3;
  printf("enter 3 number\n");
  scanf("%d %d %d",&num1,&num2,&num3);
  if(num1>num2){
    if(num1>num3){
      printf("%d is largest\n",num1);
    }
    else{
      printf("%d is largest\n",num3);
    }
  }
  else{
    if(num2>num3){
      printf("%d is largest\n",num2);
    }
    else{
      printf("%d is largest\n",num3);
    }
  }
  printf("execution over\n");
}
-----------------------------------------------------------------------------------------------
/*
2.WAP to determine the grade of a student
inputs            :marks
comparison        :>=, <
control statement   :if-else-if ladder
no of variables     :1
datatype of variables :int
scope of variable   :local
*/
#include<stdio.h>
void main(){
  int marks;
  printf("enter marks\n");
  scanf("%d",&marks);
  if(marks>=90){
    printf("Grade A");
  }
  else if(marks>=80 && marks<90){
    printf("Grade B");
  }
  else if(marks>=70 && marks<80){
```

```
    printf("Grade C");
  }
  else if(marks>=60 && marks<70){
    printf("Grade D");
  }
  else if(marks<60){
    printf("Grade F");
  }
}
```

3./*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.

```
**********************************************************************************
inputs            :amps,volt,prv_month,cur_month;
comparison        :<=
control statement    :if-else-if ladder
no of variables      :9
datatype of variables :int,float
scope of variable    :local
*/
```

```
#include<stdio.h>
void main(){
  float amps,volt;
  int prv_month,cur_month;
  printf("enter previous month reading\n");
  scanf("%d",&prv_month);
  printf("enter current month reading\n");
  scanf("%d",&cur_month);
  if(prv_month>cur_month){
     printf("previous month reading cannot be greater than current month");
  }
  else{

  printf("enter the voltage and current reading\n");
  scanf("%f %f",&amps,&volt);
  float kwh;
  int usage=cur_month-prv_month;

  float watts = (amps) * (volt);
  kwh = (watts) * (usage) / 1000;
   float cost;

  if(1<=usage<=100){
      cost=4.22*kwh;
  }
  else if(101<=usage<=200){
      cost=(100*4.22)+(usage-100)*5.02*kwh;
  }
  float total_bill=(cost+40)+(usage);
  printf("total bill amount is %f",total_bill);
  }
}
```

WA 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
C The following assumptions should be made
Basic pay rate $12.00/hr
Overtime (more than 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 it else statements

```
/*
inputs            :hours;
comparison        :<=
control statement    :if-else-if ladder
no of variables      :4
datatype of variables :float
scope of variable    :local
*/
```

```
#include<stdio.h>
#define basic_pay 12.00
#define overtime 1.5
void main(){
  float hours,gross_pay,tax,net_pay;
  printf("enter the hours worked\n");
  scanf("%f",&hours);
  if(hours<40){
     gross_pay=hours*basic_pay;
     if(gross_pay<=300){
        tax=.15*gross_pay;
        net_pay=gross_pay-tax;
     }
     else if(gross_pay<=450){
        tax=.15*300+(.2*(gross_pay-300));
        net_pay=gross_pay-tax;
     }
     else{
        tax=.15*300+(.2*150)+(.25*(gross_pay-450));
        net_pay=gross_pay-tax;
     }

  }
  else{

     gross_pay=40*basic_pay+((hours-40)*basic_pay*overtime);

     if(gross_pay<=300){
        tax=.15*gross_pay;
        net_pay=gross_pay-tax;
     }
     else if(gross_pay<=450){
        tax=.15*300+(.2*(gross_pay-300));
        net_pay=gross_pay-tax;
     }
     else{
        tax=.15*300+(.2*150)+(.25*(gross_pay-450));
        net_pay=gross_pay-tax;
      }

   }
   printf("gross pay= %f\n",gross_pay);
  printf("tax= %f\n",tax);
  printf("net pay= %f",net_pay);
}
```

4.Simple calculator

```
#include <stdio.h>

int main() {
   char operator;
   int num1, num2, result;
   printf("Enter an operator (+, -, *, /, %%): ");
   scanf(" %c", &operator);
   printf("Enter two integers: ");
   scanf("%d %d", &num1, &num2);
   switch (operator) {
      case '+':
         result = num1 + num2;
         printf("Result: %d + %d = %d\n", num1, num2, result);
         break;
      case '-':
         result = num1 - num2;
         printf("Result: %d - %d = %d\n", num1, num2, result);
         break;
      case '*':
         result = num1 * num2;
         printf("Result: %d * %d = %d\n", num1, num2, result);
         break;
      case '/':
            result = num1 / num2;
            printf("Result: %d / %d = %d\n", num1, num2, result);
         break;
      case '%':
            result = num1 % num2;
            printf("Result: %d %% %d = %d\n", num1, num2, result);
         }
         break;
      default:
         printf("Error: Invalid operator.\n");
   }

   return 0;
}
```

---

1. //WAP to sum of n natural numbers

```
#include<stdio.h>
void main(){
   int limit,sum=0;
   printf("enter the limit\n");
   scanf("%d",&limit);
   for(int i=1;i<+limit;i++){
      sum=sum+i;
   }
   printf("sum of %d natural numbers is %d",limit,sum);

}
```

```
/*
   while(int i<=limit){
      sum+=i;
      i++
   }
```

2.//WAP to print even numbers upto a given number

```
#include<stdio.h>
void main(){
   int limit,i=2;
   printf("enter the limit\n");
   scanf("%d",&limit);
   while(i<=limit){
      printf("%d\n",i);
      i+=2;
   }
}
```

---

3. //WAP to reverse a number

```
#include<stdio.h>
void main(){
   int num,rev=0;
   printf("enter number\n");
   scanf("%d",&num);
   while(num!=0){
      rev=(rev*10)+(num%10);
      num=num/10;
   }
   printf("reversed number is %d",rev);
}
```

4.//WAP to count number of digits in a number

```
#include<stdio.h>
void main(){
   int num,count=0;
   printf("enter number\n");
   scanf("%d",&num);
   while(num!=0){
      count++;
      num=num/10;
   }
   printf("number of digits is %d",count);
}
```

Assignment with respect to while loop

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

```
#include<stdio.h>
void main(){
   int limit,digit0=0,digit1=1,next;
   int i=0;
   printf("enter limit\n");
   scanf("%d",&limit);
   printf("%d %d",digit0,digit1);
   while(i<limit){
      next=digit0+digit1;
      printf(" %d",next);
      digit0=digit1;
      digit1=next;
      i++;

   }
}
```

---

2. WAP to print factorial of a number.

```
#include <stdio.h>
int factorial(int a);
int main()
{
   int num,i=2,fact=1;
   printf("enter the number\n");
   scanf("%d",&num);
   if(num==0||num==1){
      return 1;
   }
   else{
      while(num!=0){
         printf("%d*",num);
         fact=fact*num;
         num--;
      }
   }

   printf("\n%d",fact);
   return 0;
}
```

---

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

```
#include <stdio.h>
int factorial(int a);
int main()
{
   int num,flag=0;
   printf("enter the number\n");
   scanf("%d",&num);
   int i=2;
   while(i<=num/2){
      if((num%i)==0){
         printf("number is not prime");
         break;
      }
      else{
         flag=1;
         i++;
      }
   }
   if(1==flag){
      printf("number is prime");
   }
}
```

---

4. WAP to print lower case alphabets.

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