C Programming

Q1: WAP in C to print “Hello World”.

```
#include <stdio.h>

int main()
{
   printf("Hello World");

   return 0;
}
```

Q2: WAP in C to calculate the sum of two integers.

```
#include <stdio.h>

int main()
{
   int a, b;

   printf("Enter two integers 'a' and 'b':");
   scanf("\n %d %d", &a, &b);

   printf("\n The sum of the two integers = %d", a+b);

   return 0;
}
```

Q3: WAP in C to the salary of an employee using the formula “total salary = basic salary + HRA + TA”, where basic salary is a user input, HRA is 40% of the basic salary, and TA is 10% of the HRA.

```
#include <stdio.h>

int main()
{
```

```
    float basic, hra, ta, total;

    printf("Enter basic salary:");
    scanf("%f", &basic);

    hra = 0.4*basic;
    ta = 0.1*hra;
    total = basic + hra + ta;

    printf("\n The total salary = %f", total);

    return 0;
}
```

Q4: WAP in C to convert a given currency value from AED to USD.

```
#include <stdio.h>

int main()
{
    float aed, usd;

    printf("\n Enter currency value in AED:");
    scanf("%f", &aed);

    usd = 0.27*aed;

    printf("\n Currency value in USD: %f", usd);

    return 0;
}
```

Q5: WAP in C to convert a given temperature value from Celsius to Fahrenheit.

```
#include <stdio.h>

int main()
{
```

```
  float cel, fah;

  printf("\n Enter temperature value in ºCelsius:");
  scanf("%f", &cel);

  fah = 9/5*cel + 32;

  printf("\n Temperature value in Fahrenheit: %f", fah);

  return 0;
}
```

Q6: WAP in C that takes user input in hours and minutes and calculates the total number of minutes.

```
#include <stdio.h>

int main()
{
  int hr, min;

  printf("\n Enter time in hours and minutes:");
  scanf("%d %d", &hr, &min);

  min = hr*60;

  printf("\n Total number of minutes: %d", hr+min);

  return 0;
}
```

Q7: WAP in C to find the third angle of a triangle if the user gives 2 angles.

```
#include <stdio.h>

int main()
{
  float a, b;
```

```
  printf("\n Enter two angles of a triangle:");
  scanf("%f %f", &a, &b);

  printf("\n Third angle of the triangle: %f", 180-a-b);

  return 0;
}
```

Q8: WAP in C to print the user's age using an input value of the birth year.

```
#include <stdio.h>
#define current 2023

int main()
{
  int year;

  printf("\n Enter year of birth:");
  scanf("%d", &year);

  printf("\n Age: %d", current-year);

  return 0;
}
```

Q9: WAP in C to convert an input distance value from kilometers to miles.

```
#include <stdio.h>

int main()
{
  float km;

  printf("\n Enter distance in kilometers (km):");
  scanf("%f", &km);

  printf("\n Distance in miles (mi): %f", km*0.621371);
```

```
  return 0;
}
```

Q10: WAP in C to find the area and the circumference of a circle using a given radius.

```
#include <stdio.h>
#define pi 3.14

int main()
{
  float r, a, p;

  printf("\n Enter radius of a circle:");
  scanf("%f", &r);

  a = pi*r*r;
  p = 2*pi*r;

  printf("\n Area of the circle = %f", a);
  printf("\n Perimeter of the circle = %f", p);

  return 0;
}
```

Q11: WAP in C to print the larger of two input numbers.

```
#include <stdio.h>

int main()
{
  float a, b;

  printf("\n Enter two numbers:");
  scanf("%f %f", &a, &b);

  if (a>b)
  printf("\n %f > %f", a, b);
```

```
  else if (b>a)
  printf("\n %f > %f", b, a);
  else
  printf("\n %f = %f", a, b);

  return 0;
}
```

Q12: WAP in C to determine complementary angles.

```
#include <stdio.h>

int main()
{
  float a, b;

  printf("\n Enter the values of two angles:");
  scanf("%f %f", &a, &b);

  if (a+b==90)
  printf("\n The angles are complementary.");
  else
  printf("\n The angles are not complementary.");

  return 0;
}
```

Q13: WAP in C to find the average of 3 subjects for a student, and to determine whether they have passed or failed. The student can be considered to have passed if their average is above 60.

```
#include <stdio.h>

int main()
{
  float m1, m2, m3;

  printf("\n Enter the marks obtained in 3 subjects:");
```

```
  scanf("%f %f %f", &m1, &m2, &m3);

  if (m1+m2+m3/3 > 60)
  printf("\n You have passed.");
  else
  printf("\n You have not passed.");

  return 0;
}
```

Q14: WAP in C to determine whether a given number is positive or negative.

```
#include <stdio.h>

int main()
{
  float a;

  printf("\n Enter an integer:");
  scanf("%f", &a);

  if (a > 0)
  printf("\n The number is positive.");
  else
  printf("\n The number is negative.");

  return 0;
}
```

Q15: WAP in C to print the largest of 3 numbers.

```
#include <stdio.h>

int main()
{
  float a, b, c;

  printf("\n Enter three numbers:");
```

```
  scanf("%f %f %f", &a, &b, &c);

  if (a>b)
  {
    if (a>c)
    printf("\n %f is the largest number.", a);
    else
    printf("\n %f is the largest number.", c);
  }
  else if (b>a)
  {
    if (b>c)
    printf("\n %f is the largest number.", b);
    else
    printf("\n %f is the largest number.", c);
  }
  else if (a==b)
  {
    if (a==c)
    printf("\n The numbers are equal.");
    else if (a>c)
    printf("\n %f is the largest number.", a);
    else
    printf("\n %f is the largest number.", c);
  }

  return 0;
}
```

Q16: WAP in C to create a calculator that can perform 5 basic operations between two numbers.

```
#include <stdio.h>

int main()
{
  int a, b;
```

```
    char op;

    printf("\n Enter the operator:");
    scanf("%c", &op);

    printf("\n Enter two operands:");
    scanf("%d %d", &a, &b);

    switch(op)
    {
    case '+': printf("\n Sum = %d", a+b); break;
    case '-': printf("\n Difference = %d", a-b); break;
    case '*': printf("\n Product = %d", a*b); break;
    case '/': printf("\n Quotient = %d", a/b); break;
    case '%': printf("\n Remainder = %d", a%b); break;
    default: printf("\n Invalid entry.");
    }

    return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
    int a, b;
    char op;

    printf("\n Enter two integer operands:");
    scanf("%d %d", &a, &b);

    getchar();

    printf("\n Enter the operator:");
    scanf("%c", &op);
```

```
  switch(op)
  {
  case '+': printf("\n Sum = %d", a+b); break;
  case '-': printf("\n Difference = %d", a-b); break;
  case '*': printf("\n Product = %d", a*b); break;
  case '/': printf("\n Quotient = %d", a/b); break;
  case '%': printf("\n Remainder = %d", a%b); break;
  default: printf("\n Invalid entry.");
  }

  return 0;
}
```

Q17: WAP in C to determine one's voter status.

```
#include <stdio.h>
#define current 2023

int main()
{
  int year, age;
  printf("\n Enter your year of birth");
  scanf("%d", &year);
  age=current-year;
  printf("\n Age: %d", age);
  (age>=18)?printf("\n CAN VOTE"): printf("\n CAN NOT VOTE");

  return 0;
}
```

Q18: WAP in C to determine whether the number is odd or even.

```
#include <stdio.h>

int main()
{
  int num;
```

```
  printf("\n Enter a number:");
  scanf("%d", &num);

  (num%2==0)?printf("\n It is an even number."):printf("\n It is an odd number.");

  return 0;
}
```

Q19: WAP in C to determine the largest of two numbers.

```
#include <stdio.h>

int main()
{
  int num1, num2, res;
  printf("\n Enter 2 numbers:");
  scanf("%d%d", &num1, &num2);
  res=(num1>num2)?num1:num2;
  printf("\n Largest: %d", res);

  return 0;
}
```

Q20: WAP in C to swap the values of the entered variables.

```
#include <stdio.h>

int main()
{
  int a, b, c;

  printf("\n Enter two values 'a' and 'b'");
  scanf("%d%d", &a, &b);

printf("\n Before swapping: a = %d, b = %d", a, b);

  c=a;
  a=b;
```

```
  b=c;

  printf("\n Before swapping: a = %d, b = %d", a, b);
  printf("\n After swapping: a = %d, b = %d", a, b);

  return 0;
}
```

Q21: WAP in C to produce an ASCII integer value for a given character input.

```
#include <stdio.h>

int main()
{
  char num;
  printf("\n Enter a character:");
  scanf("\n %c", &num);
  printf("\n Corresponding ASCII Integer Value: %d", num);

  return 0;
}
```

Q22: WAP in C to take a character value input to print an output (‘m’ for morning, ‘e’ for evening, and ‘n’ for night).

```
#include <stdio.h>

int main()
{
  char d;

  printf("\n Enter input (m, e, n): ");
  scanf("%c", &d);

  if (d=='m'||d=='M')
  printf("\n Morning.");
  else if (d=='e'||d=='E')
  printf("\n Evening.");
```

```
   else if (d=='n'||d=='N')
   printf("\n Night.");
   else
   printf("\n Invalid input.");

   return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
   char d;

   printf("\n Enter input (m, e, n): ");
   scanf("%c", &d);

   switch(d)
   {
      case 'm': printf("\n Morning."); break;
      case 'e': printf("\n Evening."); break;
      case 'n': printf("\n Night."); break;
      case 'M': printf("\n Morning."); break;
      case 'E': printf("\n Evening."); break;
      case 'N': printf("\n Night."); break;
      default: printf("\n Invalid Input.");
   }

   return 0;
}
```

Q23: WAP in C to determine whether an alphabet is a vowel or a consonant.

```
#include <stdio.h>

int main()
{
```

```
  char alphabet;

  printf("\n Enter an alphabet: ");
  scanf("%c", &alphabet);

  switch (alphabet)
  {
    case 'a': printf("\n The alphabet is a vowel."); break;
    case 'A': printf("\n The alphabet is a vowel."); break;
    case 'e': printf("\n The alphabet is a vowel."); break;
    case 'E': printf("\n The alphabet is a vowel."); break;
    case 'i': printf("\n The alphabet is a vowel."); break;
    case 'I': printf("\n The alphabet is a vowel."); break;
    case 'o': printf("\n The alphabet is a vowel."); break;
    case 'O': printf("\n The alphabet is a vowel."); break;
    case 'u': printf("\n The alphabet is a vowel."); break;
    case 'U': printf("\n The alphabet is a vowel."); break;
    default: printf("\n The alphabet is a consonant.");
  }

  return 0;
}
```

Q24: WAP in C to print “Hello” 5 times.

```
#include <stdio.h>

int main()
{
  int count=1;
  while(count<=5)
  {
    printf("\n Hello.");
    count=count+1;
  }
  return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
  int count=1;
  while(count<=5)
  {
    printf("\n Hello.");
    count=count+=1;
  }
  return 0;
}
```

Q25: WAP in C to print the first 10 natural numbers.

```
#include <stdio.h>

int main()
{
  int count=1;
  while(count<=10)
  {
    printf("\n %d", count);
    count=count+=1;
  }
  return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
  int count=1;
  while(count<=10)
  {
    printf("\n %d", count);
```

```
    count=count+1;
  }
  return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
  int count=1;
  while(count<=10)
  {
    printf("\n %d", count);
    count++;
  }
  return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
  int i;
  for(i=1;i<=10;i++)
  {
    printf("\n %d", i);
  }

  return 0;
}
```

Q26: WAP in C to print the even numbers from 1 to 30.

```
#include <stdio.h>

int main()
{
```

```
  int count=1;
  while(count<=30)
  {
    if (count%2==0)
    printf("\n %d", count);
    count=count+1;
  }
  return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
  int count=1;
  while(count<=30)
  {
    if (count%2==0)
    printf("\n %d", count);
    count++;
  }
  return 0;
}
```

Q27: WAP in C to print the table of 5.

```
#include <stdio.h>

int main()
{
  int count=5;
  while(count<=50)
  {
    printf("\n %d", count);
    count=count+5;
  }
  return 0;
```

```
}
```

(or)

```
#include <stdio.h>

int main()
{
   int table, count;

   printf("\n Enter whose table you want to print:");
   scanf("\n %d", &table);

   count=table;
   while(count<=table*10)
   {
      printf("\n %d", count);
      count=count+table;
   }
   return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
   int num, count=1;

   printf("Enter any number:");
   scanf("%d", &num);

   printf("\n Table of %d is:", num);
   while(count<=10)
   {
        printf("\n %d * %d = %d", num, count, num*count);
        count++;
   }
```

```
    return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
    int num, count=1;

    printf("Enter any number:");
    scanf("%d", &num);

    printf("\n Table of %d is:", num);
    while(count<=10)
    {
        printf("\n %d * %d = %d", num, count, num*count);
        ++count;
    }

    return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
    int num, count=1;

    printf("Enter any number:");
    scanf("%d", &num);

    printf("\n Table of %d is:", num);
    while(count<=10)
    {
        printf("\n %d * %d = %d", num, count, num*count);
        count+=1;
```

```
  }

  return 0;
}
```

Q28: WAP in C to print 10 consecutive numbers after a given number.

```
#include <stdio.h>

int main()
{
  int num, count=1;

  printf("Enter any number:");
  scanf("%d", &num);

  printf("\n List of 10 Consecutive Numbers after %d is:", num);
  while(count<=10)
  {
      printf("\n %d ", num+1);
      num++;
      count++;
  }

  return 0;
}
```

Q29: WAP in C to determine whether a number is prime or not.

```
#include <stdio.h>

int main()
{
  int num, count=2, prime=1;

  printf("Enter any number:");
  scanf("%d", &num);
```

```
  while(count<num) // count<=num-1
  {
      if(num%count==0)
      {
        prime=0;
        break;
      }
      count++;
  }
  if (prime==1)
  printf("\n It is a prime number.");
  else
  printf("\n It is not a prime number.");

  return 0;
}
```

Q30: WAP in C to print ten natural numbers in reverse order.

```
#include <stdio.h>

int main()
{
  int i=10;
  for(i=10;i>0;i--) // a while loop is converted to a for loop by adding a variable assignment (initialization), condition, and incrementation
  {
    printf("\n %d", i);
  }

  return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
  int i=10;
```

```
   for(;i>0;i--)
   {
      printf("\n %d", i);
   }

   return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
   int i=10;
   for(;i>0;)
   {
      printf("\n %d", i--);
   }

   return 0;

}
```

(or)

```
#include <stdio.h>

int main()
{
   int i=10;
   for(;i>0;)
   {
      printf("\n %d", i);
      i--;
   }

   return 0;

}
```

NOTE: The following codes are different–

```
#include <stdio.h>

int main()
{
   int i;
   for(i=1;i<=10;i++);
   {
      printf("\n %d", i);
   }

   return 0;

}
```

```
#include <stdio.h>

int main()
{
   int i;
   for(i=1;i<=10;i++)
   {
      printf("\n %d", i);
   }

   return 0;

}
```

Q31: Write a C program to accept a number from the user and print the digits in the number.

```
#include <stdio.h>

int main()
{
   int rem, n;
   printf("\n Enter any number:");
   scanf("\n %d", &n);
   for(;n>0;)
   {
      rem=n%10;
      n=n/10;
      printf("\n %d", rem);
   }

   return 0;

}
```

(or)

```
#include <stdio.h>

int main()
{
   int rem, n;
   printf("\n Enter any number:");
   scanf("\n %d", &n);
   for(;n>0;n=n/10)
   {
      rem=n%10;
      printf("\n %d", rem);
   }

   return 0;

}
```

(or)

```
#include <stdio.h>

int main()
{
   int rem, n;
   printf("\n Enter any number:");
   scanf("\n %d", &n);
   for(n>0;rem=n%10;n/=10)
   printf("\n %d", rem);

   return 0;

}
```

Q32: WAP in C to take a number as a user input and print the sum of the digits.

```
#include <stdio.h>

int main()
{
```

```
  int rem=0, sum=0, n;
  printf("\n Enter any number:");
  scanf("%d", &n);
  for(;n>0;n/=10)
  {
    rem=n%10;
    sum=sum+rem;
  }
  printf("\n Sum of digits = %d", sum);
  return 0;

}
```

Q33: WAP in C to calculate the average of 5 subjects for 3 students.

```
#include <stdio.h>

int main()
{
  int stu, sub;
  float marks, total;

  for(stu=1;stu<=3;stu++) // no. of students = 3

    {
      total=0;

      printf("\n Enter marks in 5 subjects: ");

      for(sub=1;sub<=5;sub++) // no. of subjects = 5

      {
        scanf("%f", &marks);
        total+=marks; // total=total+marks, or, total+marks
      }

      printf("\n Average = %f \n", total/5);
```

```
    }

  return 0;
}
```

Q34: WAP in C to swap two integer values.

```
#include <stdio.h>

int main()
{
  int a, b;
  printf("\n enter two variables 'a' and 'b': ");
  scanf("\n %d%d", &a, &b);

  a=a+b;
  b=a-b;

  printf("\n before swapping, a=%d and b=%d", b, a-b);
  printf("\n after swapping, a=%d and b=%d", a-b, b);

  return 0;
}
```

Q35: WAP in C to calculate the average of N students in M subjects.

```
 #include <stdio.h>

int main()
{
  int n, stu, m, sub;
  float marks, total;

  printf("\n Enter the number of students to calculate average for: ");
  scanf("%d", &n);
  printf("\n Enter the number of subjects: ");
  scanf("%d", &m);
```

```
  for(stu=1;stu<=n;stu++)
  {
    total=0;
    printf("\n Enter the marks obtained in %d subjects for student %d: ", m, stu);
    for(sub=1;sub<=m;sub++)
    {
      scanf("%f", &marks);
      total=total+marks;
    }
    printf("\n Your average is = %f \n", total/m);
  }

  return 0;
}
```

Q36: WAP in C to calculate the salary of 10 employees.

```
#include <stdio.h>

int main()
{
        int n, i;

        printf("\n Enter the number of employees to calculate the salary for: ");
        scanf("%d", &n);

        float basic, total=0, special=0, hra=0;
        for(i=0;i<n;i++)
        {
          printf("\n Enter the basic salary of employee %d: ", i+1);
          scanf("%f", &basic);

          total=0;special=0;hra=0;
          special=0.25*basic;
          hra=0.4*basic;
          total=basic+special+hra;
```

```
        printf("\n The total salary of employee %d = %f \n", i+1, total);
    }

    return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
    int n, i;

    printf("\n Enter the number of employees to calculate the salary for: ");
    scanf("%d", &n);

    float basic[n], special=0, hra=0;
    printf("\n Enter the basic salaries of %d employees: ", n);
    for(i=0;i<n;i++)
    {
      scanf("%f", &basic[i]);

      special=0; hra=0;
      special=0.25*basic[i];
      hra=0.4*basic[i];
      basic[i]=basic[i]+special+hra;

      printf("\n The salary of employee %d = %f \n", i+1, basic[i]);
    }

    return 0;
}
```

Q37: WAP in C to find the exponential values of user input values.

```
#include <stdio.h>

int main()
```

```
{
   int n, p, res=1, i;

   printf("\n Enter base and power: ");
   scanf("%d %d", &n, &p);

   for(i=1;i<=p;i++)
   {
      res=res*n;
   }
   printf("\n The answer is %d", res);

   return 0;
}
```

Q38: WAP in Cto print the following pattern:

```
*
*       *
*       *       *
*       *       *       *
*       *       *       *       *
```

```
#include <stdio.h>
int main()
{
  int i, j, rows;
  printf("Enter the number of rows: ");
  scanf("%d", &rows);
  for (i = rows; i>=1; i--)
  {
    for (j = 1; j <= i; ++j)
    {
      printf("* ");
    }
    printf("\n");
```

```
  }
  return 0;
}
```

Q39: WAP in Cto print the following pattern:

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

```
#include <stdio.h>

int main()
{
   int rows, i, j;
   printf("\n Enter pattern size: ");
   scanf("%d", &rows);
   for(i=1;i<=rows;i++)
   {
      for(j=1;j<=i;j++)
      {
         printf("%d \t", j);
      }
      printf("\n");
   }

   return 0;
}
```

Q40: WAP in Cto print the following pattern:

1
2 2
3 3 3

4 4 4 4
5 5 5 5 5

```
#include <stdio.h>

int main()
{
   int rows, i, j;
   printf("\n Enter pattern size: ");
   scanf("%d", &rows);
   for(i=1;i<=rows;i++)
   {
      for(j=1;j<=i;j++)
      {
         printf("%d \t", i);
      }
      printf("\n");
   }

   return 0;
}
```

Q41: WAP in C to print the following pattern:

5
5 5
5 5 5
5 5 5 5
5 5 5 5 5

```
#include <stdio.h>

int main()
{
   int rows, i, j;
   printf("\n Enter pattern size: ");
```

```
  scanf("%d", &rows);
  for(i=1;i<=rows;i++)
  {
    for(j=1;j<=i;j++)
    {
      printf("%d \t", rows);
    }
    printf("\n");
  }

  return 0;
}
```

Q42: WAP in C to find the sum of digits in a number using a loop.

```
#include <stdio.h>

int main()
{
  int n, m, sum=0;
  printf("\n Enter any no.: ");
  scanf("%d", &n);
  m=n;
  while(n>0)
  {
    sum=sum+n%10;
    n=n/10;
  }
  printf("\n Sum of digits: %d", sum);

  return 0;
}
```

Q43: WAP in C to reverse a given number.

```
#include <stdio.h>

int main()
```

```
{
   int n, m, rem, rev=0;
   printf("\n Enter any no.: ");
   scanf("%d", &n);
   m=n;
   while(n>0)
   {
      rem=n%10;
      rev=rev*10+rem;
      n=n/10;
   }
   printf("\n Reverse of the number = %d", rev);

   return 0;
}
```

Q44: WAP in C to enter 5 elements and print them using arrays.

```
#include <stdio.h>

int main()
{
   int marks[5], i;
   printf("\n Enter the marks for 5 students: ");
   for (i=0; i<5; i++)
   {
      scanf("\n %d", &marks[i]);
   }
   printf("\n Here are the marks of 5 students: ");
   for (i=0; i<5; i++)
   {
      printf("\n %d", marks[i]);
   }

   return 0;
}
```

Q45: WAP in C to print the sum of 5 numbers.

```
#include <stdio.h>

int main()
{
   float marks[5], sum=0;
   int i;
   printf("\n Enter the addends: ");
   for (i=0; i<5; i++)
   {
      scanf("\n %f", &marks[i]);
      sum=sum+marks[i];
   }
   printf("\n Here is the sum of the numbers: %f", sum);

   return 0;
}
```

Q46: WAP in C to print the average of the marks of a given number of students.

```
#include <stdio.h>

int main()
{
   int i, n;
   printf("\n Enter the number of students: ");
   scanf("%d", &n);
   float marks[n], sum=0;

   printf("\n Enter the marks of %d students: ", n);
   for (i=0; i<n; i++)
   {
      scanf("\n %f", &marks[i]);
      sum=sum+marks[i];
   }
   printf("\n Here is the average of the students: %f", sum/n);
```

```
   return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
   int i, n;
   printf("\n Enter the number of students: ");
   scanf("%d", &n);
   float marks[n], sum=0;

   printf("\n Enter the marks of %d students:- ", n);
   for (i=0; i<n; i++)
   {
      printf("\n Enter the marks of Student %d: ", i+1);
      scanf("%f", &marks[i]);
      sum=sum+marks[i];
   }
   printf("\n Here is the average of the students: %f", sum/n);

   return 0;
}
```

Q47: WAP in C to find the highest marks obtained by a given number of students.

```
#include <stdio.h>

int main()
{
   int i, n;
   printf("\n Enter the number of students: ");
   scanf("%d", &n);
   float marks[n], highest;
   printf("\n Enter the marks of %d students:- ", n);
   for(i=0;i<n;i++)
   {
```

```
    printf("\n Enter the marks of Student %d: ", i+1);
    scanf("%f", &marks[i]);
  }
  highest=marks[0];
  for(i=0;i<n;i++)
  {
    if(marks[i]>highest)
    highest=marks[i];
  }
  printf("\n The highest has been obtained by student %d, with %f.", i, highest);

  return 0;
}
```

Q48: WAP in C to find the student who obtained a certain mark.

```
#include <stdio.h>

int main()
{
  int i, n;
  printf("\n Enter the no. of students: ");
  scanf("%d", &n);
  int marks[n], key;
  printf("\n Enter marks: ");
  for(i=0;i<n;i++)
  {
    printf("\n Student %d: ", i+1);
    scanf("%d", &marks[i]);
  }
  printf("\n Enter the key element: ");
  scanf("%d", &key);
  for(i=0;i<n;i++)
  {
    if(marks[i]==key)
    {
      printf("\n Student=%d", i+1);
```

```
        break;
      }
   }
   if(marks[i]==n)
   printf("\n The element does not exist.");

   return 0;
}
```

Q49: WAP in C to print an array.

```
#include <stdio.h>

int main()
{
   int i, arr[10]={5};
   for(i=0;i<10;i++)
   {
      arr[i]=5;
      printf("\n %d", arr[i]);
   }
   return 0;
}
```

Q50: WAP in C to print an array in reverse order.

```
#include <stdio.h>

int main()
{
   int n;
   printf("\n Enter the number of elements: ");
   scanf("%d", &n);
   int i, arr[n];
   printf("\n Enter %d elements: ", n);
   for(i=0;i<n;i++)
   {
      scanf("%d", &arr[i]);
```

```
  }
  for(i=n-1;i>=0;i--)
  {
    printf("%d \t", arr[i]);
  }
  return 0;
}
```

Q51: WAP in C to sum all the even numbers together and all the odd numbers together, and then find which sum is bigger.

```
#include <stdio.h>

int main()
{
  int n, i;
  printf("\n Enter the number of elements: ");
  scanf("%d", &n);

  int a[n], osum=0, esum=0;
  printf("\n Enter %d elements", n);
  for(i=0;i<n;i++)
  {
    scanf("%d", &a[i]);
    if(a[i]%2==0)
    esum=esum+a[i];
    else
    osum=osum+a[i];
  }
  if(osum>esum)
  printf("\n The sum of the odd numbers is greater than the sum of the even numbers, and it is %d", osum);
  else if(esum>osum)
  printf("\n The sum of the even numbers is greater than the sum of the odd numbers, and it is %d", esum);
  else if(esum==osum)
  printf("\n Both the sums are equal, and they are %d", esum);
```

```
   return 0;
}
```

(or)

```
#include <stdio.h>

int main()
{
   int n, i;
   printf("\n Enter the number of elements: ");
   scanf("%d", &n);

   int a[n], osum=0, esum=0;
   printf("\n Enter %d elements", n);
   for(i=0;i<n;i++)
   scanf("%d", &a[i]);

   for(i=0;i<n;i++)
   {

      if(a[i]%2==0)
      esum+=a[i];
      else
      osum+=a[i];
   }
   if(osum>esum)
   printf("\n The sum of the odd numbers is greater than the sum of the even numbers, and it is %d",
osum);
   else if(esum>osum)
   printf("\n The sum of the even numbers is greater than the sum of the odd numbers, and it is %d",
esum);
   else if(esum==osum)
   printf("\n Both the sums are equal, and they are %d", esum);

   return 0;
}
```

Q52: WAP in C to sort an array.

```
#include <stdio.h>

int main()
{
   int n, i, j, min, temp;
   printf("\n Enter the number of elements: ");
   scanf("%d", &n);
   int a[n];
   printf("\n Enter the %d elements: ", n);
   for(i=0;i<n;i++)
   scanf("%d", &a[i]);

   for(i=0;i<n;i++)
   {
      min=i;
      for(j=i+1;j<n;j++)
      {
         if(a[min]>a[j])
         min=j;
      }
      temp=a[i];
      a[i]=a[min];
      a[min]=temp;
   }
   for(i=0;i<n;i++)
   printf("%d \t", a[i]);

   return 0;
}
```

Q53: WAP in C to print a matrix with elements that are the user input.

```
#include <stdio.h>

int main()
```

```
{
   int r, c, n, i, j;
   printf("\n Enter the number of rows and columns: ");
   scanf("%d%d", &r, &c);
   int a[r][c];
   printf("\n Enter the %d elements: ", r*c);

   for(i=0;i<r;i++)
   {
      for(j=0;j<c;j++)
      {
         scanf("%d", &a[i][j]);
      }
   }
   for(i=0;i<r;i++)
   {
      printf("\n");
      for(j=0;j<c;j++)
      {
         printf("%d \t", a[i][j]);
      }
   }

   return 0;
}
```

Q54: WAP in C to read two marklists of equal size and check whether they are identical.

```
#include <stdio.h>

int main()
{
   int i, n;

   printf("\n Enter the size of the two mark lists: ");
   scanf("%d", &n);
```

```
  float marks1[n], marks2[n];

  printf("\n Enter the values of mark list 1: ");
  for(i=0;i<n;i++)
  {
    scanf("%f", &marks1[n]);
  }

  printf("\n Enter the values of mark list 2: ");
  for(i=0;i<n;i++)
  {
    scanf("%f", &marks2[n]);
  }

  if (marks1[n]==marks2[n])
  printf("\n The mark lists are equal.");
  else
  printf("\n The mark lists are not equal.");

  return 0;
}
```

Q55: WAP in C to read two matrices of user-input order and perform their addition and subtraction.

```
#include <stdio.h>

int main()
{
  int r, c, i, j;

  printf("\n Enter the number of rows and columns: ");
  scanf("%d%d", &r, &c);

  int a[r][c], b[r][c], d[r][c], e[r][c];

  printf("\n Enter the %d elements in matrix A: ", r*c);
```

```
for(i=0;i<r;i++)
{
   for(j=0;j<c;j++)
   {
      scanf("%d", &a[i][j]);
   }
}

printf("\n Enter the %d elements in matrix B: ", r*c);
for(i=0;i<r;i++)
{
   for(j=0;j<c;j++)
   {
      scanf("%d", &b[i][j]);
   }
}

printf("\n The sum of the matrices is: ");
for(i=0;i<r;i++)
{
   printf("\n");
   for(j=0;j<c;j++)
   {
      d[i][j]=a[i][j]+b[i][j];
      printf("%d \t", d[i][j]);
   }
}

printf("\nThe difference of the matrices is: ");
for(i=0;i<r;i++)
{
   printf("\n");
   for(j=0;j<c;j++)
   {
      e[i][j]=a[i][j]-b[i][j];
      printf("%d \t", e[i][j]);
```

```
    }
  }

  return 0;
}
```

Q56: WAP in C to illustrate the difference between break command and continue command.

```
#include <stdio.h>

int main()
{
  int n=-9;
  while(n<2)
  {
    n++;

    if(n==-3||n==-7)
    continue; // takes it back to the while loop without executing any command under it

    else if(n==-1)
    break;

    printf("%d \t", n);
  }

  return 0;
}
```

Q57: WAP in C to take a user-input matrix, print its diagonal elements and their sum.

```
#include <stdio.h>

int main()
{
  int r, c, i, j, sum=0;
  printf("\n Enter the number of rows and columns: ");
  scanf("%d%d", &r, &c);
```

```
int a[r][c];
printf("\n Enter the %d elements in the matrix: ", r*c);
for(i=0;i<r;i++)
{
   for(j=0;j<c;j++)
   {
      scanf("%d", &a[i][j]);
   }
}
for(i=0;i<r;i++)
{
   printf("\n");
   for(j=0;j<c;j++)
   {
      printf("%d \t", a[i][j]);
   }
}
printf("\n The diagonal elements are as follows: ");
for(i=0;i<r;i++)
{
   printf("\n");
   for(j=0;j<c;j++)
   {
      if(i==j)
      printf("%d \t", a[i][j]);
      else
      printf("\t");
   }
}
printf("\n The sum of the diagonal elements ");
for(i=0;i<r;i++)
{
   for(j=0;j<c;j++)
   {
      if(i==j)
      sum=sum+a[i][j];
```

```
    }

  }
  printf(" = %d", sum);
  printf("\n The secondary diagonal elements are as follows: ");
  for(i=0;i<r;i++)
  {
    printf("\n");
    for(j=0;j<c;j++)
    {
      if(i+j==r-1)
      printf("%d \t", a[i][j]);
      else
      printf("\t");
    }
  }
  printf("\n The sum of the secondary diagonal elements ");
  sum=0;
  for(i=0;i<r;i++)
  {
    for(j=0;j<c;j++)
    {
      if(i+j==r-1)
      sum=sum+a[i][j];
    }

  }
  printf(" = %d", sum);
  return 0;
}
```

Q58: WAP in C to convert from the decimal base to binary base.

```
#include <stdio.h>

int main()
{
```

```
  int i, j, n, dec, arr[32]={0};
  printf("\n Enter a number: ");
  scanf("%d", &n);
  dec=n;
  while(n>0)
  {
    arr[i]=n%2;
    n=n/2;
    i++;
  }
  for(j=(i-1);j>=0;j--)
  {
    printf("%d", arr[j]);
  }
  return 0;
}
```

Q59: WAP in C to convert binary numbers to decimal numbers.

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

int main()
{
  int i, j, n, sum=0;
  printf("\n Enter the no of bits: ");
  scanf("%d",&n);

  int A[n];
  printf("\n Enter %d bits (0/1): ", n);              // 0-7 for octal, 0-15 for hexadecimal

  for(i=0;i<n;i++)
  {
    scanf("%d", &A[i]);
  }

  for(i=n-1,j=0;i>=0,j<=n-1;i--,j++)
```

```
  {
    sum=sum+A[i]*pow(2,j);              // 8 for octal, 16 for hexadecimal
  }

  printf("\n Decimal equivalent = %d", sum);

  return 0;
}
```

Q60: RTA (Road and Traffic Authority) provides three mode of transportation:

Bus: AED 3 /km

Metro: AED 5/km

Cab: AED 9/km

WAP in C to trace the total fare spent by a customer for N number of days depending on what mode of transportation he/she chooses for each day. Calculate the total fare spent for N days and print it.

```
#include <stdio.h>

int main()
{
  int days, i, mode;

  printf("\n Enter the number of days: ");
  scanf("%d", &days);

  printf("\n Enter 1 for bus, 2 for metro, 3 for cab.");
  printf("\n");

  float distance, sum=0;

  for(i=1;i<=days;i++)
  {
    printf("\n Enter mode for day %d: ", i);
    scanf("%d", &mode);
    printf("\n Enter distance for day %d in km: ", i);
    scanf("%f", &distance);
```

```
    switch(mode)
    {
       case 1: sum=sum+(3*distance); break;
       case 2: sum=sum+(5*distance); break;
       case 3: sum=sum+(9*distance); break;
       default: printf("\n Enter one of the three mentioned modes of transport.");
    }
  }
  printf("\n The total fare for %d days = %f", days, sum);

  return 0;
}
```
