Q1). Write a program to swap two numbers with and without using a temporary variable.

```c
#include <stdio.h>

int main() {

    int a,b;
    printf("Enter the value of 'a' : ");
    scanf("%d", &a);
    printf("Enter the value of 'b' : ");
    scanf("%d", &b);

    // with temp variable

    int temp = a;
    a=b;
    b=temp;

    // without temp variable

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

    printf("Value of a : %d\n",a);
    printf("Value of b : %d\n",b);

    return 0;
}
```

```
C:\himanshu\assignment_4>gcc q1.c

C:\himanshu\assignment_4>a.exe
Enter the value of 'a' : 2
Enter the value of 'b' : 5
Value of a : 5
Value of b : 2
```

Q2). Write a program to illustrate the use of unary prefix and postfix increment and decrement operators.

```c
#include <stdio.h>

int main() {

    printf("Enter the number 'a' : ");
    int a;
    scanf("%d", &a);

    printf("a++ : %d\n", a++);
    printf("++a : %d\n", ++a);
    printf("a-- : %d\n", a--);
    printf("--a : %d\n", --a);

    return 0;
}
```

```
C:\himanshu\assignment_4>gcc q2.c

C:\himanshu\assignment_4>a.exe
Enter the number 'a' : 3
a++ : 3
++a : 5
a-- : 5
--a : 3
```

Q3). Write a c program to input the value of days and convert it into years, weeks and days.

```c
#include <stdio.h>

int main() {

    printf("Enter the number of days : ");
    int days;

    scanf("%d", &days);
    printf("%d years %d weeks %d days", days/365, (days%365)/7, (days%365)%7);

    return 0;
}
```

```
C:\himanshu\assignment_4>gcc q3.c

C:\himanshu\assignment_4>a.exe
Enter the number of days : 1000
2 years 38 weeks 4 days
```

Q4). Write a c program to input the distance travelled by a car and the fuel consumed. Next compute the mileage of the car and display.

```c
#include <stdio.h>

int main() {

    int dist, fuel;
    printf("Enter the distance travelled by the car : ");
    scanf("%d", &dist);
    printf("Enter the fuel comsumed by the car : ");
    scanf("%d", &fuel);

    float mil = dist/fuel;

    printf("The mileage of the car is : %0.2f km/l", mil);
    return 0;
}
```

```
C:\himanshu\assignment_4>gcc q4.c

C:\himanshu\assignment_4>a.exe
Enter the distance travelled by the car : 2000
Enter the fuel comsumed by the car : 60
The mileage of the car is : 33.00 km/l
```

Q5). Write a program to display the size of every data type using “sizeof” operator.

```c
#include <stdio.h>

void main() {
    printf("\nthe size of data type short int  =%d", sizeof(short int));
    printf("\nthe size of data type unsigned short int  =%d", sizeof(unsigned short int));
    printf("\nthe size of data type unsigned  int =%d", sizeof(unsigned int));
    printf("\nthe size of data type int  =%d", sizeof(int));
    printf("\nthe size of data type long int =%d", sizeof(long int));
    printf("\nthe size of data type unsigned long int =%d", sizeof(unsigned long int));
    printf("\nthe size of data type long long int =%d", sizeof(long long int));
    printf("\nthe size of data type unsigned long long int =%d", sizeof(unsigned long long int));
    printf("\nthe size of data type signed char  =%d", sizeof(signed char));
    printf("\nthe size of data type unsigned char  =%d", sizeof(unsigned char));
    printf("\nthe size of data type float  =%d", sizeof(float));
    printf("\nthe size of data type double =%d", sizeof(double));
    printf("\nthe size of data type long double =%d", sizeof(long double));
}

```

```
C:\himanshu\assignment_4>gcc q5.c

C:\himanshu\assignment_4>a.exe

the size of data type short int  =2
the size of data type unsigned short int  =2
the size of data type unsigned  int =4
the size of data type int  =4
the size of data type long int =4
the size of data type unsigned long int =4
the size of data type long long int =8
the size of data type unsigned long long int =8
the size of data type signed char  =1
the size of data type unsigned char  =1
the size of data type float  =4
the size of data type double =8
the size of data type long double =12
```

Q6). The cost of one type of mobile service is Rs. 250 plus Rs. 1.25 for each call made over and above 100 calls. Write a program to read customer codes and calls made and print the bill for each customer.

```c
#include <stdio.h>

int main() {
    printf("Enter the number of calls made by the user : ");
    int x;
    float bill = 250;
    scanf("%d", &x);
    if(x <= 100 && x > 0) {
        printf("Bill : %f", bill);
    } else if(x > 100){
        bill += (x-100)*1.25;
        printf("Bill : %0.2f", bill);
    } else {
        printf("invalid input");
    }
}
```

```
C:\himanshu\assignment_4>gcc q6.c

C:\himanshu\assignment_4>a.exe
Enter the number of calls made by the user : 457
Bill : 696.25
```

Q7). Write a c program to shift the given data by two bits to the left.

```c
#include <stdio.h>

int main() {

    printf("Enter the number : ");
    int x;
    scanf("%d", &x);

    printf("\nAfter shifting 2bits to the left, the modified number : %d", x<<2);
}
```

```
C:\himanshu\assignment_4>gcc q7.c

C:\himanshu\assignment_4>a.exe
Enter the number : 5

After shifting 2bits to the left, the modified number : 20
```

Q8). Write a program to input the value of 4 variables a, b, c and d. Compute the resultant value of the following expressions:

a. (a+b) * (c /d)

```c
#include <stdio.h>

int main() {

    float a,b,c,d;
    printf("Enter a : ");
    scanf("%f", &a);
    printf("Enter b : ");
    scanf("%f", &b);
    printf("Enter c : ");
    scanf("%f", &c);
    printf("Enter d : ");
    scanf("%f", &d);

    printf("\nAns : %0.2f", (a+b)*(c/d));
}
```

```
C:\himanshu\assignment_4>gcc q8_1.c

C:\himanshu\assignment_4>a.exe
Enter a : 3
Enter b : 4
Enter c : 5
Enter d : 6

Ans : 5.83
```

b. (a + b) * c / d

```c
#include <stdio.h>

int main() {

    float a,b,c,d;
    printf("Enter a : ");
    scanf("%f", &a);
    printf("Enter b : ");
    scanf("%f", &b);
    printf("Enter c : ");
    scanf("%f", &c);
    printf("Enter d : ");
    scanf("%f", &d);

    printf("Ans : %0.2f", (a+b)*c/d);
}
```

```
C:\himanshu\assignment_4>gcc q8_2.c

C:\himanshu\assignment_4>a.exe
Enter a : 2
Enter b : 3
Enter c : 4
Enter d : 5
Ans : 4.00
```

c. a+(b*c) / d

```c
#include <stdio.h>

int main() {

    float a,b,c,d;
    printf("Enter a : ");
    scanf("%f", &a);
    printf("Enter b : ");
    scanf("%f", &b);
    printf("Enter c : ");
    scanf("%f", &c);
    printf("Enter d : ");
    scanf("%f", &d);

    printf("Ans : %0.2f", a+(b*c)/d);
}
```

```
C:\himanshu\assignment_4>gcc q8_3.c

C:\himanshu\assignment_4>a.exe
Enter a : 2
Enter b : 3
Enter c : 4
Enter d : 5
Ans : 4.40
```

Q9). Write a program to find the largest and smallest among three entered numbers.

```c
#include <stdio.h>

int main() {

    int a,b,c;
    printf("Enter 1st numbers : ");
    scanf("%d", &a);
    printf("Enter 2nd numbers : ");
    scanf("%d", &b);
    printf("Enter 3rd numbers : ");
    scanf("%d", &c);

    if(a>b && a>c) {
        printf("a is the greatest number\n");
    } else if(b>a && b>c) {
        printf("b is the greatest number\n");
    } else if(c>a && c>b) {
        printf("c is the greatest number\n");
    }

    if(a<b && a<c) {
        printf("a is the smallest number\n");
    } else if(b<a && b<c) {
        printf("b is the smallest number\n");
    } else if(c<a && c<b) {
        printf("c is the smallest number\n");
    }
}
```

```
C:\himanshu\assignment_4>gcc q9.c

C:\himanshu\assignment_4>a.exe
Enter 1st numbers : 4
Enter 2nd numbers : 6
Enter 3rd numbers : 8
c is the greatest number
a is the smallest number
```