Assignment 3 Solution

Q.1 /*Write a program to check whether a given number is positive or non-positive.*/

```c
//Solution:

#include<stdio.h>

int main(){
    int num;
    printf("Enter a number:");
    scanf("%d",&num);
    if(num>0)
    {
        printf("%d is a positive number.",num);
    }
    else{
        printf("%d is a non-positive number.",num);
    }
    return 0;
}
```

Q.2 //Write a program to check whether a given number is divisible by 5 or not

```c
//Solution:

#include<stdio.h>

int main(){
    int num;
    printf("Enter a number:");
    scanf("%d",&num);
    if(num%5==0)
    {
        printf("%d is divisible by 5",num);
    }
    else
    {
        printf("%d is not divisible by 5",num);
    }
    return 0;
}
```

Q.3 /*Write a program to check whether a given number is an even number or an odd

number.*/

```c
//Solution:

#include<stdio.h>

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

Q.4 /*Write a program to check whether a given number is an even number or an odd

number without using % operator.*/

```c
//Solution:

#include<stdio.h>

int main(){
    int num;
    printf("Enter a number:");
    scanf("%d",&num);
    int result=num/2;
    if(result*2!=num)
        printf("%d is a odd number",num);
    else
        printf("%d is a even number",num);
    return 0;
}
```

Q.5 /*. Write a program to check whether a given number is a three-digit number or not.

Solution:*/

```c
#include<stdio.h>

int main(){
    int num,count=0;
    printf("Enter a number:");
    scanf("%d",&num);
    for(int i=0;num;i++)
    {
        num=num/10;
        count++;
    }
    if(count==3)
        printf("Entered number is a three digit number");
    else
        printf("Entered number is not a three digit number");
    return 0;
}
```

Q.6 /*Write a program to print greater between two numbers. Print one number of both are

the same.*/

//Solution

```c
#include<stdio.h>

int main(){
    int num1,num2;
    printf("Enter two number:");
    scanf("%d %d",&num1, &num2);
    if(num1==num2)
        printf("both number are same");
    else if(num1>num2)
        printf("%d is the greatest number",num1);
    else
        printf("%d is greatest number",num2);
    return 0;
}
```

Q.7 //Write a program to check whether roots of a given quadratic equation are real & distinct, real & equal or imaginary roots

```
//Solution:

#include<stdio.h>

int main(){
    int a,b,c,D=0;
    printf("Enter the value of a:");
    scanf("%d",&a);
    printf("Enter the value of b:");
    scanf("%d",&b);
    printf("Enter the value of c:");
    scanf("%d",&c);
    D=(b*b)-(4*a*c);
    if(D>0)
    {
        printf("\n\nRoot of quadratic equation in distinct and real");
    }
    else if(D==0)
    {
        printf("\nRoot of quadratic equation is real and equal");
    }
    else if(D<0)
    {
        printf("\nRoot of qudratic equation is imaginary");
    }
    return 0;
}
```

Q.8 /*Write a program to check whether a given year is a leap year or not.*/

```
//Solution:

#include<stdio.h>

int main(){
    int num;
    printf("Enter a number:");
    scanf("%d",&num);
    if(num%4==0)
    {
        printf("Entered year %d is a leap year",num);
```

```
    }
    else
    {
        printf("Entered year %d is not a leap year",num);
    }
    return 0;
}
```

Q.9 //Write a program to find the greatest among three given numbers. Print number once if the greatest number appears two or three times.

```
//Solution:

#include<stdio.h>

int main(){
    int num,num2,num3;
    printf("Enter first number:");
    scanf("%d",&num);
    printf("Enter Second number:");
    scanf("%d",&num2);
    printf("Enter third number:");
    scanf("%d",&num3);
    if(num>num2 && num>num3)
    {
        printf("First entered number is the greatest number");
    }
    else if(num2>num && num2>num3)
    {
        printf("Second entered number is the greatest number");
    }
    else if(num3>num && num3 >num2){
        printf("Third entered number is the greatest number");
    }
    else if(num==num2 || num==num3 || num2==num3)
    {
        printf("The entered number are same i.e %d",num);
    }
    return 0;
}
```

Q.10 /*Write a program which takes the cost price and selling price of a product from the

user. Now calculate and print profit or loss percentage.*/

```
//Solution:

#include<stdio.h>

int main(){
    double CP,SP,P,L;
    printf("Enter the Cost Price of the product:");
    scanf("%lf",&CP);
    printf("Enter the Selling Price of the product:");
    scanf("%lf",&SP);
    if(SP>=CP)
    {
        P=SP-CP;
        printf("Product was sold with profit of Rs:%lf at Rs%lf selling price
with profit percentage of %lf%%",SP-CP,SP,(P/CP)*100);
    }
    else if(SP<=CP)
    {
        L=CP-SP;
        printf("Product was sold with loss of Rs:%lf at Rs%lf selling price with
loss percentage of %lf%%",CP-SP,SP,(L/CP)*100);
    }
    return 0;
}
```

Q.11 /*. Write a program to take marks of 5 subjects from the user. Assume marks are given

out of 100 and passing marks is 33. Now display whether the candidate passed the examination or failed.*/

```
//Solution:

#include<stdio.h>

int main(){
    double eng,hin,sci,ss,cs;
    printf("Enter marks of English:");
    scanf("%lf",&eng);
    printf("Enter marks of Hindi:");
```

```
    scanf("%lf",&hin);
    printf("Enter marks of Science:");
    scanf("%lf",&sci);
    printf("Enter marks of Social-Science:");
    scanf("%lf",&ss);
    printf("Enter marks of Computer-Science:");
    scanf("%lf",&cs);
    if(eng<=33 && sci<=33 && hin<=33 && ss<=33 && cs<=33)
    {
        printf("Student failed in Exam");
    }
    else
    {
        printf("Student passed in Exam");
    }
    return 0;
}
```

Q.12 //Write a program to check whether a given alphabet is in uppercase or lowercase

```
//Solution

#include<stdio.h>

int main(){
    char ch;
    printf("Enter a letter:");
    scanf("%c",&ch);
    if(ch>=65 && ch<=90)
    {
        printf("Entered letter is a uppercase Letter");
    }
    else if(ch>=97 && ch<=122)
    {
        printf("Entered letter is a lowwer-case letter");
    }
    return 0;
}
```

Q.13 //Write a program to check whether a given number is divisible by 3 and divisible by 2.

```
//Solution:

#include<stdio.h>

int main(){
    int num;
    printf("Enter a number:");
    scanf("%d",&num);
    if(num%3==0 && num%2==0)
        printf("Entered number %d is divisible by 3 and 2",num);
    else
        printf("Entered number %d is not divisible by 3 and 2",num);
    return 0;
}
```

Q.14 //Write a program to check whether a given number is divisible by 7 or divisible by 3.

```
//Solution:

#include<stdio.h>

int main(){
    int num;
    printf("Enter a number:");
    scanf("%d",&num);
    if(num%7==0)
    {
        printf("Entered number %d is divisible by 7",num);
    }
    else if(num%3==0)
    {
        printf("Entered number %d is divisible by 3",num);
    }
    else
    {
        printf("Entered number %d is not divisible by 7 and 3",num);
    }
    return 0;
}
```

Q.15 //Write a program to check whether a given number is positive, negative or zero.

```
//Solution

#include<stdio.h>

int main(){
    int num;
    printf("Enter a number:");
    scanf("%d",&num);
    if(num<0)
        printf("Number is negative number");
    else if(num>0)
        printf("Number is positive number");
    else if(num==0)
        printf("Number is zero ");
    return 0;
}
```

Q.16 //Write a program to check whether a given character is an alphabet (uppercase), an alphabet (lower case), a digit or a special character

```
//Solution:

#include<stdio.h>

int main(){
    char chr;
    printf("Enter a character:");
    scanf("%c",&chr);
    int ch=chr;
    if(ch>=48 && ch<=57)
    {
        printf("Entered character is a digit");
    }
    else if((ch>=32 && ch<=47 )|| (ch>=58 && ch<=64) || (ch>=91 && ch<=96))
    {
        printf("Entered character is a special character");
    }
    else if(ch>=65 && ch<=90)
    {
        printf("Entered character is a upper case letter");
    }
```

```
    else if(ch>=97 && ch<=122)
    {
        printf("Entered character is a lower case letter");
    }
    return 0;
}
```

Q.17 //Write a program which takes the length of the sides of a triangle as an input. Display whether the triangle is valid or not.

```
//Solution:

#include<stdio.h>

int main(){
    int side1,side2,side3;
    printf("Enter the length of three sides of a triangle:");
    scanf("%d%d%d",&side1,&side2,&side3);

    if((side1+side2>side3) && (side2+side3>side1) && (side3+side1>side2))
    {
        printf("The Triangle is valid");
    }
    else
    {
        printf("The Triangle is not-valid");
    }
    return 0;
}
```

Q.18 //Write a program which takes the month number as an input and display number of days in that month

```
//Solution:

#include<stdio.h>

int main(){
    int num;
    printf("Enter the month number:");
    scanf("%d",&num);
    if(num==1)
```

```
        printf("January has 30 days");
    else if(num==2)
        printf("February has 28/29 days");
    else if(num==3)
        printf("March has 31 days");
    else if(num==4)
        printf("April has 30 days");
    else if(num==5)
        printf("May has 31 days");
    else if(num==6)
        printf("June has 30 days");
    else if(num==7)
        printf("July has 31 days");
    else if(num==8)
        printf("August has 31 days");
    else if(num==9)
        printf("September has 30 days");
    else if(num==10)
        printf("October has 31 days");
    else if(num==11)
        printf("November has 30 days");
    else if(num==12)
        printf("December has 31 days");
    return 0;
}
```