Homework 2 Solution

EX1: C Program to Check Whether a Number is Even or Odd

/*C program to check whether a number entered by user is even or odd. */

```
#include <stdio.h>
int main(){
    int num;
    printf("Enter an integer you want to check: ");
    scanf("%d",&num);
    if((num%2)==0)     /* Checking whether remainder is 0 or not. */
        printf("%d is even.",num);
    else
        printf("%d is odd.",num);
    return 0;
}
```

Or

/* C program to check whether an integer is odd or even using conditional operator */

```
#include <stdio.h>
int main(){
   int num;
   printf("Enter an integer you want to check: ");
   scanf("%d",&num);
   ((num%2)==0) ? printf("%d is even.",num) : printf("%d is odd.",num);
   return 0;
}
```

EX2: C Program to Check Vowel or Consonant

```
#include <stdio.h>
int main(){
  char c;
  printf("Enter an alphabet: ");
  scanf("%c",&c);
  if(c=='a'||c=='A'||c=='e'||c=='E'||c=='i'||c=='I'||c=='o'||c=='O'||c=='u'||c=='U')
      printf("%c is a vowel.",c);
  else
      printf("%c is a consonant.",c);
  return 0;
}
```

Or

```
/* C program to check whether a character is vowel or consonant using conditional operator */

#include <stdio.h>
int main(){
 char c;
 printf("Enter an alphabet: ");
 scanf("%c",&c);
 (c=='a'||c=='A'||c=='e'||c=='E'||c=='i'||c=='I'||c=='o'||c=='O'||c=='u'||c=='U')  ? printf("%c is a
vowel.",c) : printf("%c is a consonant.",c);
  return 0;
}
```

EX3:C Program to Find the Largest Number Among Three Numbers

```
/* C program to find largest number using if statement only */

#include <stdio.h>
int main(){
    float a, b, c;
    printf("Enter three numbers: ");
    scanf("%f %f %f", &a, &b, &c);
    if(a>=b && a>=c)
      printf("Largest number = %.2f", a);
    if(b>=a && b>=c)
      printf("Largest number = %.2f", b);
    if(c>=a && c>=b)
      printf("Largest number = %.2f", c);
    return 0;
}
```

Or

```
/* C program to find largest number using if...else statement */

#include <stdio.h>
int main(){
    float a, b, c;
    printf("Enter three numbers: ");
    scanf("%f %f %f", &a, &b, &c);
    if (a>=b)
    {
      if(a>=c)
        printf("Largest number = %.2f",a);
      else
        printf("Largest number = %.2f",c);
    }
    else
    {
      if(b>=c)
        printf("Largest number = %.2f",b);
      else
        printf("Largest number = %.2f",c);
    }
    return 0;
}
```

Or

```
/* C Program to find largest number using nested if...else statement */

#include <stdio.h>
int main(){
    float a, b, c;
    printf("Enter three numbers: ");
    scanf("%f %f %f", &a, &b, &c);
    if(a>=b && a>=c)
      printf("Largest number = %.2f", a);
    else if(b>=a && b>=c)
      printf("Largest number = %.2f", b);
    else
      printf("Largest number = %.2f", c);
    return 0;
}
```

EX4: C Program to Check Whether a Number is Positive or Negative

```
#include <stdio.h>
int main()
{
    float num;
    printf("Enter a number: ");
    scanf("%f",&num);
    if (num<=0)
    {
        if (num==0)
          printf("You entered zero.");
        else
          printf("%.2f is negative.",num);
    }
    else
      printf("%.2f is positive.",num);
    return 0;
}
```

Or

```
/* C programming code to check whether a number is negative or positive or
zero using nested if...else statement. */

#include <stdio.h>
int main()
{
    float num;
    printf("Enter a number: ");
    scanf("%f",&num);
    if (num<0)      /* Checking whether num is less than 0*/
      printf("%.2f is negative.",num);
    else if (num>0)   /* Checking whether num is greater than zero*/
      printf("%.2f is positive.",num);
    else
      printf("You entered zero.");
    return 0;
}
```

EX5: C Program to Check Whether a Character is an Alphabet or not

```
/* C programming code to check whether a character is alphabet or not.*/

#include <stdio.h>
int main()
{
    char c;
    printf("Enter a character: ");
    scanf("%c",&c);
    if( (c>='a'&& c<='z') || (c>='A' && c<='Z'))
       printf("%c is an alphabet.",c);
    else
       printf("%c is not an alphabet.",c);
    return 0;
}
```

EX6: C Program to Calculate Sum of Natural Numbers

```
* This program is solved using while loop. */

#include <stdio.h>
int main()
{
    int n, count, sum=0;
    printf("Enter an integer: ");
    scanf("%d",&n);
    count=1;
    while(count<=n)       /* while loop terminates if count>n */
    {
        sum+=count;       /* sum=sum+count */
        ++count;
    }
    printf("Sum = %d",sum);
    return 0;
}
```

Or

```
/* This program is solve using for loop. */

#include <stdio.h>
int main()
{
    int n, count, sum=0;
    printf("Enter an integer: ");
    scanf("%d",&n);
    for(count=1;count<=n;++count)  /* for loop terminates if count>n */
    {
        sum+=count;                /* sum=sum+count */
    }
    printf("Sum = %d",sum);
    return 0;
}
```

EX7: C Program to Find Factorial of a Number

```
/* C program to display factorial of an integer if user enters non-negative
integer. */

#include <stdio.h>
int main()
{
    int n, count;
    unsigned long long int factorial=1;
    printf("Enter an integer: ");
    scanf("%d",&n);
    if ( n< 0)
        printf("Error!!! Factorial of negative number doesn't exist.");
    else
    {
       for(count=1;count<=n;++count)    /* for loop terminates if count>n */
       {
          factorial*=count;              /* factorial=factorial*count */
       }
    printf("Factorial = %lu",factorial);
    }
    return 0;
}
```

EX8: C Program to Make a Simple Calculator to Add, Subtract, Multiply or Divide Using switch...case

```
/* Source code to create a simple calculator for addition, subtraction,
multiplication and division using switch...case statement in C programming.
*/

# include <stdio.h>
int main()
{
    char o;
    float num1,num2;
    printf("Enter operator either + or - or * or divide : ");
    scanf("%c",&o);
```

```
    printf("Enter two operands: ");
    scanf("%f%f",&num1,&num2);
    switch(o) {
        case '+':
            printf("%.1f + %.1f = %.1f",num1, num2, num1+num2);
            break;
        case '-':
            printf("%.1f - %.1f = %.1f",num1, num2, num1-num2);
            break;
        case '*':
            printf("%.1f * %.1f = %.1f",num1, num2, num1*num2);
            break;
        case '/':
            printf("%.1f / %.1f = %.1f",num1, num2, num1/num2);
            break;
        default:
            /* If operator is other than +, -, * or /, error message is shown
*/
            printf("Error! operator is not correct");
            break;
    }
    return 0;
}
```