Programming with C Language

Tutorial 05 – Writing switch condition, while, do while & for loops

Switch

Input two numbers and display the outputs of the basic mathematic operations. The output screen should be displayed as follows;

```
Enter two numbers _______
_____ 1. +
2.  –
3.  *
4. /
Please enter your Choice __
```

```
#include <stdio.h>
int main() {
  int a, b, d, e, f;
  char c
  float g;
  printf("Enter 2 Numbers - ");
  scanf("%d %d", &a, &b);
  printf("\n1. +\n2. -\n3. *\n4. /\n\n");
  printf("Enter Your Choice - ");
  scanf(" %c", &c);
  d = a + b;
  e = a - b;
  f = a * b;
  g = (float)a / (float)b;
  switch (c) {
  case '+':
    printf("%d + %d = %d", a, b, d);
    break;
  case '-':
    printf("%d - %d = %d", a, b, e);
    break;
  case '*':
    printf("%d * %d = %d", a, b, f);
    break;
  case '/':
```

```
   printf("%d / %d = %f", a, b, g);
   break;
  default:
   printf("The Operator Is Wrong");
   break;
  }
}
```

While loop

1. Input 10 numbers and display the total count of odd & even numbers in the entered number series.

```
#include <stdio.h>

int main(void) {

  int a, i = 1, oc = 0, ec = 0;

  while (i <= 10) {

    if (i == 1) {

      printf("Enter The 1st Number - ");

      scanf("%d", &a);

    } else if (i == 2) {

      printf("Enter The 2nd Number - ");

      scanf("%d", &a);

    } else if (i == 3) {

      printf("Enter The 3rd Number - ");

      scanf("%d", &a);

    } else {

      printf("Enter The %dth Number - ", i);

      scanf("%d", &a);

    }

    if (a % 2 == 1) {

      oc++;

    } else {
```

```
    ec++;
   }
   i++;
  }
if (ec == 1) {
   printf("\nThere Are Only One Even Number");
  } else if (ec == 0) {
   printf("\nThere Are No Even Numbers");
  } else {
   printf("\nThere Are %d Even Numbers", ec);
  }
  if (oc == 1) {
   printf("\nThere Are Only One Odd Number");
  } else if (oc == 0) {
   printf("\nThere Are No Odd Numbers");
  } else {
   printf("\nThere Are %d Odd Numbers", oc);
  }  return 0;
    }
```

2. Modify the above program in to enter series of numbers terminates when the user enter -99 and display the same expected output.

```
#include <stdio.h>
int main(void) {
  int a, i = 1, oc = 0, ec = 0;
  while (i <= 10) {
    if (i == 1) {
      printf("Enter The 1st Number - ");
      scanf("%d", &a);
```

```
    } else if (i == 2) {
      printf("Enter The 2nd Number - ");
      scanf("%d", &a);
    } else if (i == 3) {
      printf("Enter The 3rd Number - ");
      scanf("%d", &a);
    } else {
      printf("Enter The %dth Number - ", i);
      scanf("%d", &a);
    }
    if(a==-99){break;}
    if(a % 2 == 1) {
      oc++;
    } else {
      ec++;
    }
    i++;
  }
  if (ec == 1) {
    printf("\nThere Are Only One Even Number");
  } else if (ec == 0) {
    printf("\nThere Are No Even Numbers");
  } else {
    printf("\nThere Are %d Even Numbers", ec);
  }
  if (oc == 1) {
    printf("\nThere Are Only One Odd Number");
  } else if (oc == 0) {
    printf("\nThere Are No Odd Numbers");
  } else {
    printf("\nThere Are %d Odd Numbers", oc);
  }  return 0;
}
```

Do while loop

Rewrite the programs for the above while loop question 1 & 2 using do while loop

1.

```
#include <stdio.h>
int main(void) {
  int a, i = 1, oc = 0, ec = 0;
  do {
    if (i == 1) {
      printf("Enter The 1st Number - ");
      scanf("%d", &a);
    } else if (i == 2) {
      printf("Enter The 2nd Number - ");
      scanf("%d", &a);
    } else if (i == 3) {
      printf("Enter The 3rd Number - ");
      scanf("%d", &a);
    } else {
      printf("Enter The %dth Number - ", i);
      scanf("%d", &a);
    }
    if (a % 2 == 1) {
      oc++;
    } else {
      ec++;
    }
    i++;
  }while (i <= 10);
 if (ec == 1) {
    printf("\nThere Are Only One Even Number");
  } else if (ec == 0) {
    printf("\nThere Are No Even Numbers");
  } else {
    printf("\nThere Are %d Even Numbers", ec);
  }
  if (oc == 1) {
    printf("\nThere Are Only One Odd Number");
  } else if (oc == 0) {
    printf("\nThere Are No Odd Numbers");
  } else {
    printf("\nThere Are %d Odd Numbers", oc);
  }
  return 0;
}
```

2.

```
#include <stdio.h>
int main(void) {
  int a, i = 1, oc = 0, ec = 0;
  do {
    if (i == 1) {
```

```
      printf("Enter The 1st Number - ");
      scanf("%d", &a);
     } else if (i == 2) {
      printf("Enter The 2nd Number - ");
      scanf("%d", &a);
     } else if (i == 3) {
      printf("Enter The 3rd Number - ");
      scanf("%d", &a);
     } else {
      printf("Enter The %dth Number - ", i);
      scanf("%d", &a);
     }
     if(a==-99){break;}
     if(a % 2 == 1) {
      oc++;
     } else {
      ec++;
     }
     i++;
    }while (i <= 10);
    if (ec == 1) {
     printf("\nThere Are Only One Even Number");
    } else if (ec == 0) {
     printf("\nThere Are No Even Numbers");
    } else {
     printf("\nThere Are %d Even Numbers", ec);
    }
    if (oc == 1) {
     printf("\nThere Are Only One Odd Number");
    } else if (oc == 0) {
     printf("\nThere Are No Odd Numbers");
    } else {
     printf("\nThere Are %d Odd Numbers", oc);
    }
    return 0;
}
```

For loop

1. Input 10 numbers and display the average value using the for loop

```
#include <stdio.h>
int main(void) {
 int x;
 float a,y=0;
 for (x = 1; x <= 10; x++) {
  printf("Enter Number %d - ", x);
```

```
  scanf("%f",&a);
  y=y+a;
 }
 printf("The Average Is %f",y/10);
    }
```

2. Display the following output using the for loop

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

```
#include <stdio.h>
int main(void) {
  int x,y;
  for (x = 1; x <= 5; x++) {
    for (y=1; y <= x;y++){
    printf("*");
    }
    printf("\n");
  }
}
```