Exercise 4
Control Flow. If Statement

1. Launch Microsoft Visual Studio.

2. Create a new project.

3. Enter the source code that inputs two integer numbers and finds the maximum number.

```c
#include <stdio.h>
int main()
{
  int x, y, max;
  printf ("Enter x = ");
  scanf ("%d", &x);
  printf ("Enter y = ");
  scanf ("%d", &y);
  max = x;
  if (y > max)
    max = y;
  printf ("Maximum number = %d\n", max);
  return 0;
}
```

4. Compile and link the program

5. Run the program

6. Change the code that finds the maximum number as follows:

```c
  if (x > y)
    max = x;
  else
    max = y;
```

7. Compile and run the program.

8. Create a new project.

9. Enter the source code that plays the game "Guess the magic number". It prints the message "Winner!!!" when the player guesses the magic number. If a wrong guess the program provides the player with feedback: "Too high!!!" or "Too low!!!".

```c
#include <stdio.h>
#include <stdlib.h>
int main()
{  int number,                    /* magic number        */
      guess;                      /* user's guess        */
   number = rand();               /* generate magic number */
   printf ("Guess the magic number: ");
   scanf ("%d", &guess);
   if (guess == number)
     printf ("Winner!!!\n");
   else if (guess > number)
     printf ("Too high!!!\n");
   else
     printf ("Too low!!!\n");
   return 0;
}
```

10. Compile and run the program.

11. Create a new project.

12. Enter the source code that inputs three real numbers and finds the maximum number.

```c
#include <stdio.h>
int main()
{
  float x, y, z, max;
  printf ("Enter x, y, z = ");
  scanf ("%f%f%f", &x, &y, &z);
  if (x > y)
    if (x > z)
      max = x;
    else
      max = z;
  else
    if (y > z)
      max = y;
    else
      max = z;
  printf ("Maximum number = %f\n", max);
  return 0;
}
```

13. Compile and run the program.

14. Create a new project.

15. Write a program that converts a number of points between 0 and 100 into a mark using a table:

Number of points	Mark
< 50	2
50 ÷ 59	3
60 ÷ 69	4
70 ÷ 79	5
≥ 80	6

```c
int main()
{ int x, mark = 0;
  printf ("Enter points = "); scanf ("%d", &x);
  if (x >= 0 && x < 50)
    mark = 2;
  else if (x < 60)
    mark = 3;
  else if (x < 70)
    mark = 4;
  else if (x <80)
    mark = 5;
  else if (x <= 100)
    mark = 6;
  else
    printf ("Invalid points!\n");
  if (mark)
    printf ("Mark = %d\n", mark);
  else
    printf ("Points are out of range!!!");
  return 0;
}
```

16. Compile and run the program.