LAB4 – Loops
Exercise 1

- The **Fibonacci Series** begins with 0 and 1.
- Each subsequent Fibonacci number is the sum of the previous two Fibonacci numbers.

$X_1 = 0$
$X_2 = 1$
$X_3 = X_1 + X_2$
$X_N = X_{N-2} + X_{N-1}$

- Example series: 0, 1, 1, 2, 3, 5, 8, 13, 21, ...

Write a C program to display Fibonacci numbers that are less than 100.

1

Exercise 2

- Write a C program to play **Number Guessing Game** against computer.
- Firstly, program should randomly determine a number (between 1 and 100).
- In a loop, the user will guess and try to find the computer's number.
- If a guess is less than or higher than the actual number, program should display a relevant message on screen.
- The loop will continue until the 5th guess.
- At the end, program should display the random number, and also the outcome (result) of game.

2

Exercise 3

- Write a program to display all **Armstrong Numbers** between 111 and 999.
- If sum of cubes of each digit of the number is equal to the number itself, then the number is called an Armstrong number.
- Example: 153 is an Armstrong number.

$153 = 1^3 + 5^3 + 3^3$
$= 1 + 125 + 27$
$= 153$

3

Exercise 4

- Write a program to calculate and display the exact numbers of bills for a purchase amount (TL).
- Program should use as big as possible bills.
- Available bills are 1, 5, 10, 20, 50, 100, 200.

Example screen output

```
Enter Amount : 2598

12 x 200 = 2400
1 x 100  = 100
1 x 50   = 50
2 x 20   = 40
1 x 5    = 5
3 x 1    = 3
```

4