# Experiment 2a
27 Feb 2025

## Objectives

- To learn Checkbox
- To learn Arrays

## Lab Exercises

## Lab Exercise 1 – Fibonacci Series

It is known that each Fibonacci series term is obtained by adding previous two term, ($a_0$=1, $a_1$=1, $a_2$=1+1=2, $a_3$=1+2=3). Design an application that takes the number of terms (N) of the Fibonacci series. The application will generate the first N terms of the Fibonacci series, put them in an array and visualize them into a multiline TextBox when generate button is clicked. If the input value (N) is not filled by the user, the application will show a proper error message. Use checkbox to ask user to find average of generated values and show it in a label.

Checkpoints;
1. Textbox should accept only int values (10pt)

2. Checkbox should be created as checked (5pt)

3. Array should be initialized with first 2 values. ($a_0$=1, $a_1$=1) (5pt)

4. When generate button is clicked, array should be filled with fibonacci series(10pt) and multiline textbox will visualize it(10pt). **Do not forget to resize array** (30pt)

5. When generate button is clicked if checkbox is checked, calculate average of the array and put result in a Label. (15pt)

6. When checkbox checked, button's text will be "Generate and calculate" otherwise it will be "Generate" (15pt)

## Problem Solving Tips

1. Fibonacci Series: 1,1,2,3,5,8,13,21,34,55, 89, 144, 233, 377, 610, 987, …
   Example: 1,1, 1+1= 2, 1+2=3, 2+3=5, 3+5=8, 5+8=13, 8+13=21

**FIBONACCI SERIES** — Label

6 — TextBox

X Calculate Average — CheckBox

☐ Calculate only first 10 values — CheckBox

0
1
1
2
3
5

— Multiline TextBox or ListBox

AVERAGE: **2**

**Generate and Calculate** — Button