

Experiment 2b

20 March 2024

Objectives

- To learn Checkbox
- To learn Arrays

Lab Exercises

Lab Exercise 1 –Lucas Series

It is known that each Lucas series term is obtained by adding previous two term, ($a_0=2$, $a_1=1$, $a_2=2+1=3$, $a_3=1+3=4$). Design an application that takes the number of terms (N) of the Lucas series. The application will generate the first N terms of the Lucas 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. ($a_0=2$, $a_1=1$) (5pt)
4. When generate button is clicked, array should be filled with lucas 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. **Lucas Series:** 2, 1, 3, 4, 7, 11, 18, 29, 47, 76, 123, 199, 322, 521, 843, 1364, 2207, 3571, 5778, 9349...

Example: 2,1, 2+1= 3, 1+3=4, 3+4=7, 4+7=11, 7+11=18, 11+18=29

The screenshot shows a Java Swing window titled "LUCAS SERIES". Inside the window, there is a text input field for entering the number of terms. Below the input field is a checkbox labeled "Calculate Average". At the bottom left of the window is a button labeled "GENERATE -CALCULATE". On the right side of the window is a large multiline text area for displaying the generated Lucas series. At the bottom right, below the text area, is a label "AVERAGE:" followed by a green rectangular box for the average result.