TRINITY COLLEGE
DEPARTMENT OF COMPUTER SCIENCE

CPSC 215: Data Structures and Algorithms
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Spring 2025

Laboratory 1

Objectives

- Familiarize with the Eclipse IDE and its workflow.
- Understand the basics of creating Java classes and methods.
- Learn to run a basic Java program.

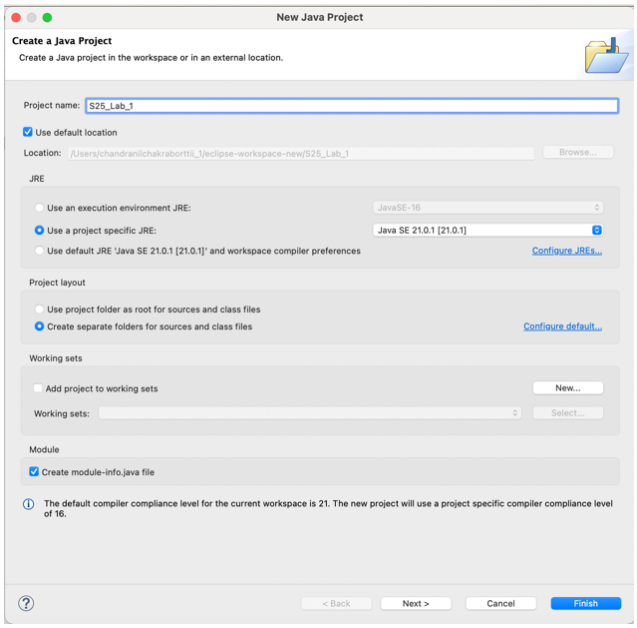
Lab 1: Getting Started:

Step 1: Download Java (JDK 17 or newer)
https://www.oracle.com/java/technologies/downloads/

Step 2: Install Eclipse IDE
https://www.eclipse.org/downloads/

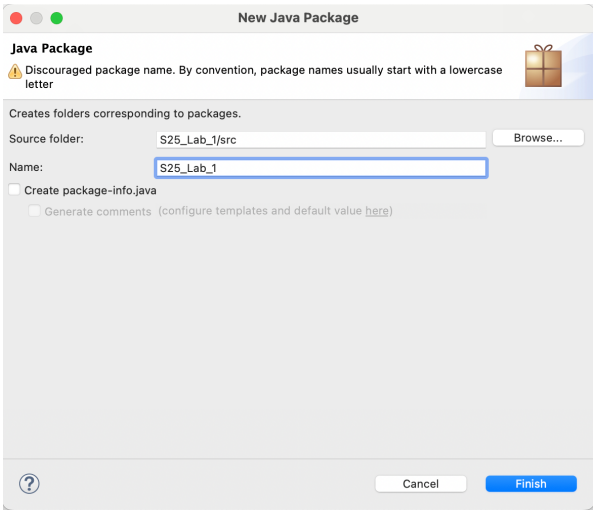
Step 3: Start a new Project on Eclipse

- Once Eclipse is installed, click on File -> New -> Java Project
- Give a Project Name (Eg. S25_Lab_1) and click Finish.



Step 4: Setup your Project

- Click on src (under Project Name) -> (Right Click) -> New Package
- Source Folder: S25_Lab_1/src
- Name: S25_Lab_1
- Click Finish



Step 5: Setup your Java Classes

File: FibonacciSequence.java

- Click on src (under Project Name) -> (Right Click) -> New Class
- Package: S25_Lab_1
- Name: FibonacciSequence.java
- Click Finish.
- Paste contents of FibonacciSequence.java starter file

File: FibonacciSequenceTest.java

- Click on src (under Project Name) -> (Right Click) -> New Class
- Package: S25_Lab_1
- Name: FibonacciSequenceTest.java
- Click Finish.
- Paste contents of FibonacciSequenceTest.java starter file

Note: Replace the first line - package **package_name;** (if you use a different name)

Step 7: Implement the printFibonacciUnder() Method [FibonacciSequence.java]

Task: Complete the method printFibonacciUnder(int n) to compute and print all Fibonacci numbers under the given value n. Follow these instructions:

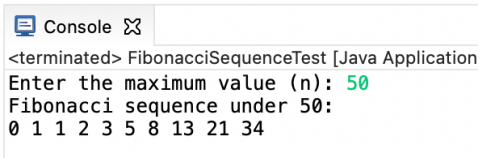
- Refer to the comments in the file for clear guidance and helpful hints to structure your implementation.

Step 8: Implement **the main() Method [**FibonacciSequenceTest.java**]**
Task: Complete the main() Method

- Refer to the comments in the file for clear guidance and helpful hints to structure your implementation.

Step 9: Run Your Program

- Right-click on the FibonacciSequence.java file -> Run As -> Java Application.
- Enter a value for n in the console when prompted.
  For example:
  Enter the maximum value (n): 50
- Observe the output. For n = 50, the program should display:
  Fibonacci sequence under 50: 0 1 1 2 3 5 8 13 21 34



Step 10: Test Your Program

- Test with different values of n:
- n = 10 should print: 0 1 1 2 3 5 8
- n = 100 should print: 0 1 1 2 3 5 8 13 21 34 55 89

Step 11: Review JavaDoc

- Review the Javadoc format that is already completed.
- You will need to follow this format for the next lab sessions.

Step 11: Submission

- Please find a TA to get your programs graded.
- Submit the Java code files as a single zip file.

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Note:

- Zip your files and upload a single zip file.
- Include comments in your code and documentation to explain each section and method.

Handin

Please find a TA to get your programs graded. If you are unable to complete the exercise during lab hours, you must visit one of the TA office hours before the deadline to get graded. After completion of your lab, upload your files to the Moodle course website as a single Zip file.

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