



**Institute of Technology**  
**School of Computing**  
**Department of Software Engineering**  
Software Engineering Tools and Practices  
Group Project

**Instruction**

- Write a java program and unit test in junit-5 framework for the questions listed.
- Each problems needs to code in separate method in one java project.
- Each group member must make an equal contribution.
- The project needs to be managed in version control system (git and GitHub).
- The group leader needs to have the project manager role
  1. Create the project central repository named like “software tools and practice project group 1/2/3..” In GitHub.
  2. The repository must be private.
  3. Add another member of group as contributor in GitHub.
  4. Can merge his/her and member contribution the master/main repository.
  5. Manage code conflicts in the repository
- All member contribution needs to be in their own GitHub account.
- Members can work on separate question, but have plus point if different members contribute to the same question.
- Group member information and other none java code writable must be in README.md Markdown file.

**Submission**

- **Deadline: March 30, 2024 12:00 PM LT.** Before deadline have a plus point.
- Any push to repository after deadline is not considered.
- Submit only one GitHub repository, like you get last assignment.
- Submit before deadline, even if incomplete project.

## Group 1

1. Check Anagram
2. Write a method that finds the longest common sub-sequence
3. Print the Fibonacci series up to a given number
4. Product maximizer

For a given input array of numbers, find the two that result in the largest product. The output should include the two numbers in the array along with their product.

5. Movie record crud console application, each crud needs to be in separate method.

## Group 2

1. Check string is a Palindrome
2. Calculates the largest prime factor of a given number.
3. Calculate grad of the given total mark( e.g 96=A+, 80=A- )
4. Check input of two strings are Anagrams?

Two words are anagrams if they contain the same letters but in a different order.

Here are a few examples of anagram pairs:

“listen” and “silent”

“binary” and “brainy”

“Paris” and “pairs”

For a given input of two strings, return a Boolean TRUE if the two strings are anagrams.

5. Song track record crud console application, each crud needs to be in separate method.

### **Group 3**

1. Array Rotation
2. Function to take two arrays as input and check whether an array is a subset of another given array
3. Student I-D number Generator using predefined patterns, the pattern needs to include, some contents from first and father name, batch, phone number and others.
4. Pangram checker
5. Employee record crud console application, each crud needs to be in separate method.

### **Group 4**

1. Transpose of Matrix
2. Word Counter from input of paragraph
3. Link Shortener
4. Prime factorization calculator
5. Pharmacy drug record crud console application, each crud needs to be in separate method.

### **Group 5**

1. Find the Largest Element in Array
2. Euclidean Algorithm
3. Decimal number reversal  
Example. 193.56 should output 653.91.
4. Calculates the largest prime factor of a given number.
5. Hospital patient record crud console application, each crud needs to be in separate method.

## **Group 6**

1. Pig Latin translator
2. Check if a number is Armstrong's number or not
3. Word search from inputted paragraph
4. Link Shortener
5. Hotel guest record crud console application, each crud needs to be in separate method.

## **Group 7**

1. Palindrome in Word
2. Find the Egyptian Fraction
3. Word reversal  
Example, the string "Dog bites man" should output as "man bites Dog."
4. Pangram checker
5. Student record crud console application, each crud needs to be in separate method.