Planned research project

Name: Trac Duc Anh Luong
ID: 103488117

Research question:
What are the key details that differentiate Object-Oriented Programming and Procedural Programming? What metrics can be applied based to measure the differentiation?

Research method:
- Build a small program: In this case, I will create a calculator program that can do basic mathematical operations, including addition, subtraction, multiplication, and division between two numbers a and b that are passed in the parameters within the Program class.
- Conduct testing and analytics based on the runtime performance and code efficiency
- Collect and refine the data collected from testing
- Give discussion based on the result
- Give insight on any further findings

Research tools:
- Programing language used:
  - OOP: C#
  - Procedural Programming: Python
- IDEs: Visual Studio and Visual Studio Code
- Write the report using Latex and Texmaker

Project relevance to unit learning outcome:
1. Design, develop, test, and debug programs using object-oriented principles in conjunction with an integrated development environment (K2, K6, S1, S2, S3)
- The OO program will separate fields and methods into a different class, in contrast to the top-down logic of the Procedural program.
- Testing will be carried out using the terminal (Windows PowerShell) to test runtime, build time and execution time.

1. Using personal experiences and established best practices, describe and explain the components of an effective object-oriented solution (K6, A2)
- Detailed insights will be given to demonstrate each component of the 2 programs, providing a comprehensive comparison between OOP and PP.