**Project: Personal Tester**

**Requirement**

This application is for those who does competitive programming to test their algorithm.

* Language: Vietnamese and English (default)
* Structure: MVVM
* Technology: WPF

**Main functions:**

The app consists of four main functions:

* Custom Test
* Checker Test
* Tree Code
* Settings

These options can be found in the side bar on the left sidebar and the right side is the main screen. The main screen will display the content of the selected item on the left sidebar.

1. Custom Test: The main screen is a Tab Control, each Tab represents a problem and contains test cases.
   1. Required:
      * Allow user to add their input, correct output and C++ exe built solution file.
      * Use the input provided to run on the solution file to generate output
      * Use that output to compare with the correct output
   2. Optional:
      * Allow user to rename the tab
      * Allow user to add a checker solution if there are multiple answers for the problem.
2. Solution Test: The main screen is a Tab Control, each Tab represents a problem and contains test cases.
   1. Required:
      * Allow user to add their input and two C++ exe built files.
        + One is the user’s solution
        + The other is the correct solution
      * Use the input provided to run on both the user’s solution file and correct solution file to generate output
      * Treat the correct solution output as the accepted output to compare with user’s solution output
   2. Optional:
      * Allow user to rename the tab
      * Allow user to add a random generator file to generate the required input for user’s solution and correct solution to run
      * Allow user to add a checker solution if there are multiple answers for the problem
3. Tree Code: Draw the structure of the code, only support C++ file
   1. Required:
      * Allow user to add their cpp file
      * Draw out the code into a tree format
4. Settings: The main screen is a Grid.

* Language option: Switch between Vietnamese and English (default)
* Test cases option: Number of test cases allowed on each tab
* Time limit option: Time limit for each test case
* Memory limit option: Memory limit for each test case

**Side functions:**

Test case result:

* Accepted (green): Correct comparison
* Wrong answer (red): Wrong comparison
* Time limit exceeded (red): Solution takes more than allowed limitation time in Settings to run
* Memory limit exceeded (red): Solution takes more than allowed limitation memory in Settings to run
* Run time error (red): Solution throws error in run time

Error handling:

* Run the other solutions first before user’s solution to see whether it passes all the allowed time and memory limit:
  + Passed – Proceed to run all input on user’s solution
  + Not passed – Show error to the user