# ECS414U/A Miniproject form

Queen Mary University of London

2021/22

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| Name | Dang Toan Bui |
| Student ID | 210289895 |
| Submitted file name | MiniProject\_ToanBui |
| Level of this program (1, 2, 3, Extra) | Extra |

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| Brief description of the program. Write the chosen theme and a high-level overview of the features (two or three sentences should suffice). |
| My mini project is an investment trading app. Multiple clients can join in the trading app with the option of buy or sell stock in the market. Each client will start with a certain amount of normal and premium stock. The client can see the amount of normal and premium stock they have as well as the amount of fund they are having. |

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| List all your source code files, and briefly describe their roles. Add as many rows as necessary. Mark the main file used for compilation in bold. | |
| File name | Description |
| User.java | File for abstract class user which contains all the attributes and operations of a user. |
| Client.java | File for class client which is a subclass of user. Client will have an account as well as normal and premium stock and inheriting other attributes from user. |
| Stock.java | File for abstract class stock which contains all the attributes and operations of a stock. |
| NormalStock.java | File for class normal stock which is a subclass of stock. It will inherit attributes from stock as well as its own attribute. |
| PremiumStock.java | File for class premium stock which is a subclass of stock. It will inherit attributes from stock as well as its own attribute. |
| Account.java | File for class account. Each client will have one account which have the fund and can deposit or withdraw money. |
| Market.java | File for class market. Market will have the information about each type of Stock (amount, grade, price) |
| Agent.java | File for class agent. Agent will have the information about clients and market. |
| Prompt.java | File for class prompt. Prompt is a window which will appear when a new client want to enter in the app or when a client want to buy/sell stock in order to get the relevant input information. |
| WindowCloser.java | File for class window closer. WindowCloser is a subclass of WindowAdapter which will help exit the app when a specific action happens. |
| GradeTypeException.java | File for a custom exception which will happen when an user input about the stock grade is incorrect. |
| BalanceException.java | File for a custom exception which will happen when an user do not have enough money to buy a certain amount of stock. |
| StockAmountException.java | File for a custom exception which will happen when an user do not have enough amount of stock to sell. |
| **InvestmentApp.java** | Main file for compiling the investment trading app. A GUI will appear when the file is compiled and run successfully. |
| Market.txt | A text file to hold initial information about the market. |

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| Class diagram, in the format specified in the instructions. |
| Diagram  Description automatically generated |

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| Usage instructions. Describe briefly what features are available to the user and how to use them. If File I/O is used, list and describe the files involved. |
| There are five buttons that a user can interact with.   1. Print client list button will show the list of client in alphabetical order in the text area. 2. View market button will show the market information with each type of stocks. 3. Add client will show the pop-up window with the require information for the client to be added. 4. Remove client button will show the pop-up window which will remove the client away from the app. 5. Buy/Sell Stock button will show the pop-up window which will require information from user like the grade type of stock, amount transfer, etc…   The array list is used in market class which holds Stock type. Array list is also used in agent class to hold Client type.  File I/O is used to write initial information of the market in file called market.txt . |

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| Other comments. |
| The code file has been compiled and run successfully on windows terminal in ITL machine.  For the extra marks, I have implemented Java stream to sort the client list name in the alphabetical order. I also add Java swing (JLabel) to show what information need to be input in each text box. |