UNIVERSITI TUNKU ABDUL RAHMAN
FHCT1022 Programming Concepts
FOUNDATION IN SCIENCE (201810)
GROUP ASSIGNMENT

ASSESSMENT: The assignment constitutes **25%** of the final grade

ASSIGNMENT THEME:
"Financial Calculator"

Group Assignment Guide:

1.0 Objectives

This assignment is designed to enable students to put into practice the knowledge they have acquired over the trimester on problem solving and C Program development. A problem will be provided whereby students will need to employ some of the steps in the seven (7) steps of program development such as IPO chart, Pseudocode, flowchart and C Program to provide an algorithmic solution. Students are encouraged to apply the concepts and principles of developing a complete algorithm to demonstrate their maturity in solving a computing problem. Students are also encouraged to extend their knowledge and skills in understanding more on the problem (application) and technical (C programming language) areas to enhance the solution.

2.0 Assignment Rules

1. **Submission Date:** Friday, 30th November 2018 before 12.00pm
2. **Group size:** 4 - 6 persons in a group.
3. **Final Report:** Submission through WBLE**.
4. **Penalty:** No marks (0%) will be awarded to everyone in the group if there is plagiarism found, **and** 10% of the entire assignment marks will be deducted each day for **late submission**.

3.0 Requirements

In this assignment, you are required to:

1. Apply the knowledge that you have learnt in this course.
2. Explore and learn control structure (structured theorem).
3. Understand the inner working for the program.
4. Outline the program logic using IPO Chart, Pseudocode and Flowchart.
5. Code the algorithm in C Programming Language.

**Students in Kampar campus are required to submit a hardcopy of report and project source code in a CD/DVD to the lecturer/tutor from each tutorial group before the due date. You will need to state which tutorial group you are from and the group leader name.*
***Students in Sg Long campus are required to submit through WBLE.*

4.0 Report Contents

1. Cover Page (Please download from WBLE)
2. Table of Content
3. IPO Chart
4. Pseudocode
5. Flowchart
6. Screenshots
7. Source-code (Program Code)

5.0 Problem/Question

You are required to create **a set of financial calculators** to help the users with their financial planning.

You should design and develop **at least THREE (3)** different financial calculators such as:

- Savings – Fixed Deposit/Compounded interest Calculator
- Car Loan Calculator
- Home Mortgage Calculator
- Investment Calculator
- Salary Calculator
- Income Tax Calculator
- Retirement Calculator etc.

Please be reminded that you may need to conduct your own research and findings to gain additional knowledge so that you may build a system that is not only workable, but contain features and functions that are helpful for the students to experience how financial decisions are made.

You are encouraged to enhance the program based on your ability to know what is being offered in this course structure. Some added features you could look into but not mandatory are:

- To allow the program to maintain a set of prevailing market interest rates where all your calculators could refer to.
- The use of good techniques to enhance module independence, maintainability and the use of records and file to store data permanently.

6.0 Grading

1. **Program Specification/Correctness (50%)**

   Algorithm and program with no errors and work correctly at all times. All basic specifications have to be met with additional enhancement and functions of the system.

2. **Documentation and program clarity (10%)**

   Appropriate localised and/or globalised variable declaration and use. Correct and appropriate documentation, formatting, indentation and white space(s) used to aid readability.

3. **Control structures and logic (15%)**

   Appropriate application of control structures and ability to specify conditions. Good control of the program flow and data types with data validation including rectification in inputs.

4. **Modularity, flexibility and upgradability (15%)**

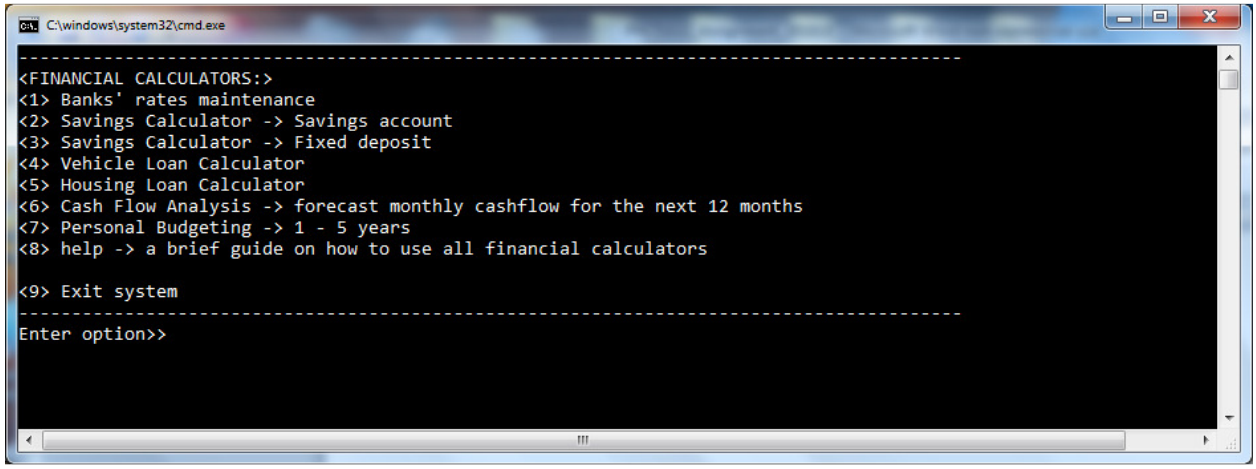
   System is aggregated into coherent and reusable pre-defined and self-defined functions, files, units and other program techniques.

5. **Peer evaluation (10%)**

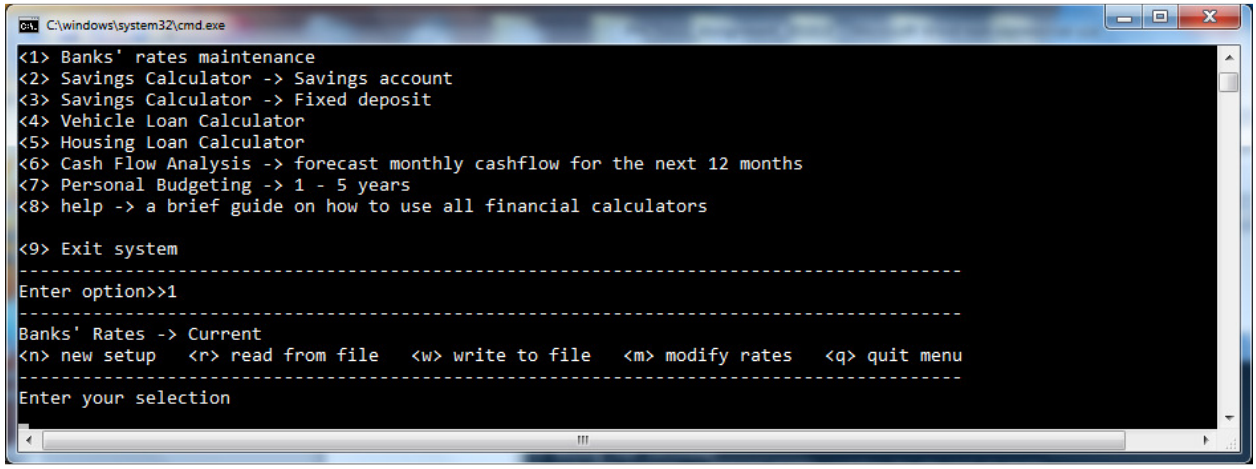
   Time management, cooperation and good work quality of all members.

7.0 Screen Shots

Main menu

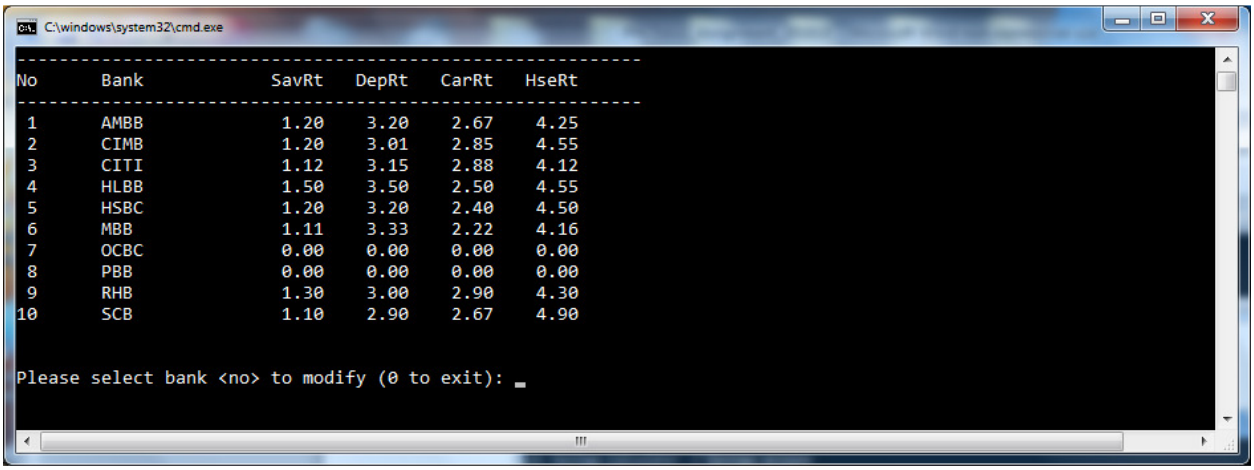


Choose option 1 to maintain bank rates.

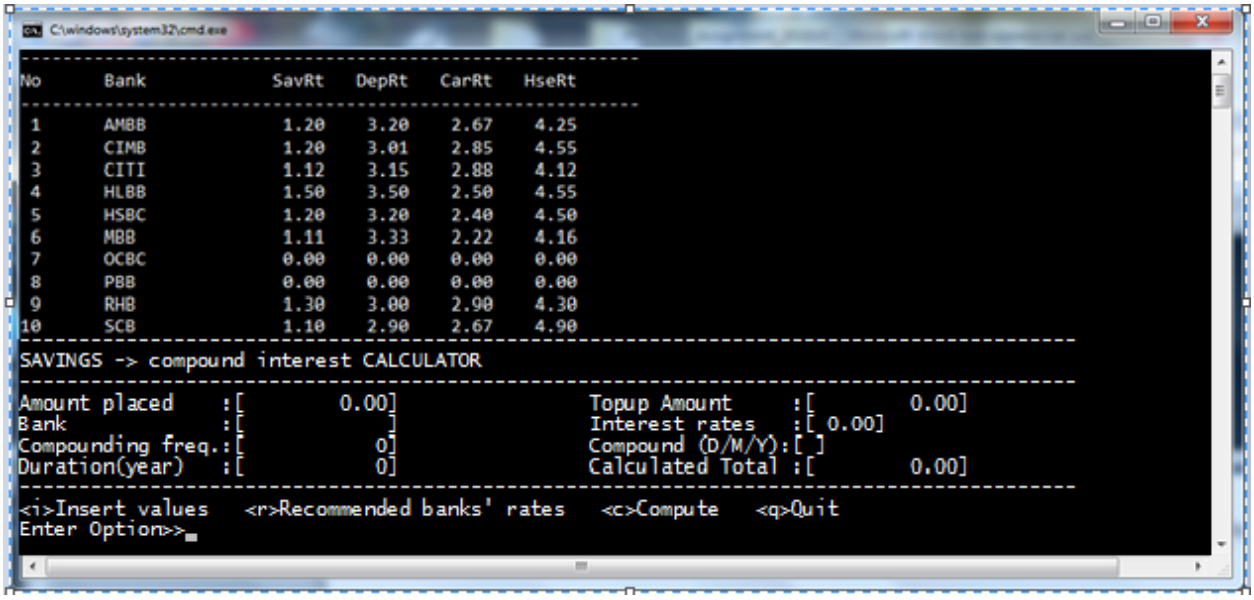


Press <n> for new setup or <r> to retrieve records → You can modify rates as needed.

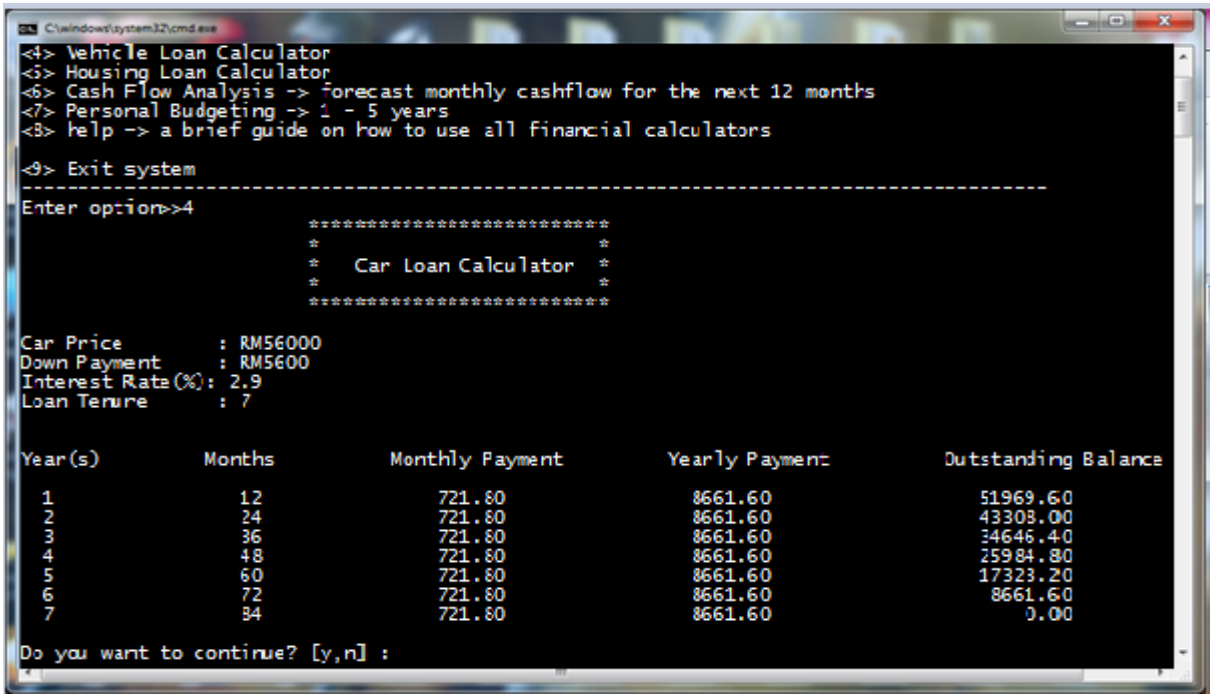
Press 0 to exit this screen.



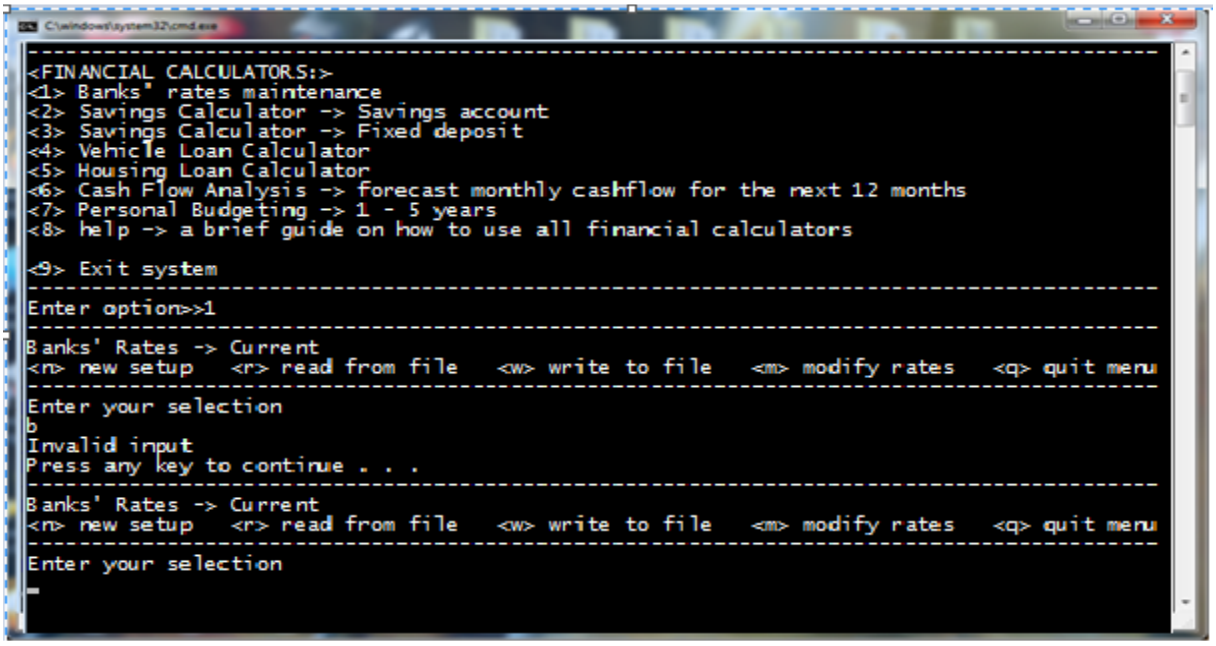
Savings – Savings (Compound interest) calculator with flexibility to do daily, weekly, monthly or yearly rest.



Car Loan / Hire Purchase Calculator



Data Validation



If user entered an invalid input, the system should be able to detect the error and allow user to enter the input again.

------End of guideline------