## A. Business Description:

The program allows to manage and calculate the monthly income of employees in a programming company.

Employee information as below:

- EmpId (Employee ID)
- Account (Employee Account)
- WorkStartingDate (Starting date to work for the company)
- ProductivityScore (Performance from 0.8~1.2)
- MonthlyIncome (Monthly Income)
- RewardSalary (Monthly Bonus)
- Allowance
- CalMonthlyIncome method (Used to calculate monthly income)
- CalReward method (Used to calculate monthly salary and bonus)

The program allows to calculate the employee's monthly payment

- How to calculate monthly bonus (RewardSalary)

RewardSalary = ProductivityScore * 3,000,000

- How to calculate monthly income (MonthlyIncome)

MonthlyIncome = RewardSalary + Allowance

## B. Performance requirements:

**I. Requirement 1:** Input Data function: Read data from employee.txt file (this file is located in the project directory) with the format below (1 mark):

```
MNV001,HieuVTT,16/10/2017,0.9f,2000000
MNV002,MinhTN,10/03/2016,0.85f,1200000
MNV003,HoangTX,20/10/2015,1f,2000000
MNV004,BinhHK,21/08/2019,0.91f,1200000
MNV,AnhNH,17/08/2018,1.1f,2000000
MNV006,KhangN,9/09/2020,1.05f,1200000
```

## II. Requirement 2 (1 mark)

2.1 Calculate monthly income for employees who read from file
- Calculate RewardSalary for employees
- Calculate MonthlyIncome for employees

2.2 Update information MonthlyIncome, RewardSalary calculated at 2.1

## III. Requirement 3 (3 marks)

3.1 Display a list of all employees reading files

3.2 Sort the list of all employees ascending by MonthlyIncome

3.2 Search employees by Account and WorkStartingDate.

## IV. Technical requirements (5 marks):

- Define classes that include the properties and methods needed to resolve the requirements of the problem(1mark)
- Define abstract Menu class contain method for display Menu and abstract execute() method for execute menu by choice of user(1 mark)
- EmpManagement extends Menu for control application(1mark)
- Validate for EmpId has 6 characters and starts with "MNV" (Example: MNV001). Error message: "The staff member does not accept the format (fading MNV and has 6 keys)". (1 mark)
- Validate for WorkStartingDate correct format dd/mm/yyyy . Error message: " WorkStartingDate must be in the correct Date format: dd/mm/yyyy"". (1 mark)
- Using the predicate interface for search function

Note: User interface as sample images below:

```
Employee Management System
---------------------------------
1.List all employee
2.Caculate money
3.Sorting employee
4.Search Employee
5.Exit
---------------------------------
Enter selection..
1
List of Employees
------------------------
MNV001      | HieuVTT    | 16/10/2017      | 0.9      | 0.0
MNV002      | MinhTN     | 10/03/2016      | 0.85     | 0.0
MNV003      | HoangTX    | 20/10/2015      | 1.0      | 0.0
MNV004      | BinhHK     | 21/08/2019      | 0.91     | 0.0
MNV006      | KhangN     | 09/09/2020      | 1.05     | 0.0
------------------------
Total : 5 employees.
```

```
Enter selection..2
List of Employees
------------------------
MNV001      | HieuVTT    | 16/10/2017      | 0.9      | 4700000.0
MNV002      | MinhTN     | 10/03/2016      | 0.85     | 3750000.0
MNV003      | HoangTX    | 20/10/2015      | 1.0      | 5000000.0
MNV004      | BinhHK     | 21/08/2019      | 0.91     | 3930000.0
MNV006      | KhangN     | 09/09/2020      | 1.05     | 4350000.0
------------------------
Total : 5 employees.
```

```
Enter selection..3
List of Employees
------------------------
MNV002      | MinhTN     | 10/03/2016      | 0.85      | 3750000.0
MNV004      | BinhHK     | 21/08/2019      | 0.91      | 3930000.0
MNV006      | KhangN     | 09/09/2020      | 1.05      | 4350000.0
MNV001      | HieuVTT    | 16/10/2017      | 0.9       | 4700000.0
MNV003      | HoangTX    | 20/10/2015      | 1.0       | 5000000.0
------------------------
Total : 5 employees.
```

```
Enter selection..4
Employee Searching
---------------------------------
1.Find by Account
2.Find by workStartingDate
---------------------------------
Enter selection..1
Enter employee account :HoangTX
List of Employees
------------------------
MNV003      | HoangTX    | 20/10/2015      | 1.0       | 5000000.0
------------------------
Total : 1 employees.
```

```
Employee Searching
---------------------------------
1.Find by Account
2.Find by workStartingDate
---------------------------------
Enter selection..2
Enter workStartingDate  :21/08/2019
List of Employees
------------------------
MNV002      | MinhTN     | 10/03/2016      | 0.85      | 3750000.0
MNV001      | HieuVTT    | 16/10/2017      | 0.9       | 4700000.0
MNV003      | HoangTX    | 20/10/2015      | 1.0       | 5000000.0
------------------------
```