C FUNDAMENTAL

Mock Project

Version	1.0
Effective Date	**25/06/2024**

HCM, 06/2024

Contents

![FRESHER ACADEMY logo]	**CODE:**	**CF.Mock.2404**
	TYPE:	**Mock Project**
	DURATION:	**12/07/2024 – 24/07/2024**

Introduction

Purpose

During developing this mock project, trainee will gain followings:

- Implement an application with harder features than assignments.
- Experience phases of software development similar to an actual developer at FPT Software.
- Design skill: trainee designs some diagrams to represent the idea and logic.
- Quality application implementation: during testing and improvement.
- Trainee is encouraged to do the project in team to learn the teamwork spirit when join a project.

Technical requirements

- Development languages: Standard C, UML.
- User interface: Command line on console
- Design tools: Star UML, Draw IO.
- Coding tools: Visual Studio Code, Visual Studio, Dev-C++, Code::Block, etc.
- Version control tools: Git with BitBucket.

Output requirements

Output product include followings:

- Design document which contains diagrams and description at high level and low level designs.
  The design document is allowed to be written in Vietnamese because of short time.
- Source code of the application with unit test result.
- This is plus: User manual document to guide end user how to install and usage of the application.

Duration

- Start date: 12/07/2024.
- End date: 24/07/2024.
- Classroom: 6 days.

Specification Requirement

Title: Time Keeping System

In this project, we will develop an application which keeps working time of employees in a company.

- **Introduction:**
    - Working time keeping is a system which records check-in time (when employee arrives in office) and check-out time (when employee leaves out office) of all employees each day in a company.
    - At a periodic or random time, company's accountants will calculate salary based on the check-in/out time.

- **Requirements:**

    Our application will have following features:

    1. The application has 2 running modes: Admin mode, Normal mode.
        - When runs, the application will show a menu which user can choose Admin mode or Normal mode.
        - After user chose a mode, an appropriate menu will be showed.
    2. Admin Mode:
        - The system has only 1 account for administrator with default password is 12345678. This default password is secured and only the administrator knows it.
        - In Admin mode, the administrator can do following actions:
            o Change Admin password.
            o Add employees who has 3 items: Employee ID, full name, basic salary (how many VND per hour). When the employee input ends, save these employees to data file.
              Note: To avoid duplication for Employee ID, the application will automatically generate the Employee ID when admin user input information for employees.
            o View information of all employees (Employee ID, full name, basic salary).
            o View working time of a specified employee.
            o Calculate salary for all employees. The salary is calculated as below rules:
                + Formula: Salary = basic salary * actual working time.
                + Each day, if check-in time is over 30 minutes late, that day salary minus 20,000 VND. This is call punished money.
                + Each day, if check-out time is over 30 minutes early, that day salary minus 20,000 VND. This is call punished money.
                + If the working time is longer than the requested time, salary doesn't plus. For example: basic salary is: 110,000 VND/h; requested time (in month) is: 184 hours => salary = 20,240,000 VND. If actual working time is 200 hours, salary is still 20,240,000 VND.
    3. Normal Mode:
        - When user chooses Normal mode, a menu will be showed with 2 items: Check-in, Check-out.
        - When user chooses Check-in (for example: at morning) or Check-out (for example: at afternoon), the application requests user to input employee ID.
          After employee finishes inputting employee ID, the application will show full name of the employee and wait for confirmation from employee.
          If the employee confirms, the application automatically gets current time and add to the item "Check-in time" or "Check-out time" respectively of this employee and save to data file.
        - After saved check-in or check-out time for an employee, the application will return to the menu of Normal mode which shows 2 items Check-in and Check-out, so that other employee can choose conveniently.

4. Others:
- The admin password should be encrypted before save to data file. For simple implementation, use the below encryption algorithm (2 steps only):
  + Step 1: Reverse all characters of the input password.
  + Step 2: Each character plus 24.
- Full name of employee has maximum length is 24 characters.
- Check-in and check-out time is counted in minutes.

Plan

Day 1:
- Get introduction about technical requirements and output requirements.
- Get introduction about outline of specification requirements.
- Outline guidance about design documents and source code.

Day 2:
- Review the requirement analysis.
- Guide to apply Git to control version of documentation.

Day 3, 4:
- Review all design documents.
- Q&A about source code.

Day 5:
- Review source code.
- Trainer checks application running (allow not-completed source code).
- Guide or check manual document if any.

Day 6:
- Audit.

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