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**DEPARTMENT OF COMPUTER AND MATHEMATICAL SCIENCES**

**UNIVERSITI TEKNOLOGI MARA**

**PULAU PINANG**

**CSC128 – Fundamentals of Computer Problem Solving**

**Lab Project**

**Overview**

This project aims to develop students’ problem-solving strategies, techniques and analytical skills that can be applied to computer field or in other areas as well as to use in their subsequent course work and professional development. Students are required to identify a problem, design appropriate solution and solve the problem in computerized way. This project will emphasize on the introduction to control structures with the use of C++ programming language to illustrate the methods.

**Instructions:**

1. Create a group with the maximum number of four students OR minimum number of two person.
2. Groups are required to find and solve one problem which arise in our daily life. Then, develop a system to solve the problem. The system must fullfil the system requirements listed below:
3. Correctness

* The system can solve the stated problem and output should be according to the specifications.

1. Reliability

* The system should function accurately and correctly for a period of time over all ranges and combinations of data.

1. User friendliness

* Easy to use with enough information.

1. Efficiency

* Apply all the control structure techniques (selection, repetition, function) that covered in CSC128 and provide appropriate output.

1. Readability of code

* The source code should be simple and easy to understand.

1. Solve the problem by using Program Development Life Cycle (PDLC) Model.
2. Analysis Phase

* Define the problem by determining the input, process and output required.

1. Design Phase

* Identify and design the solution **using flowchart.**

1. Implementation/Coding Phase

* Write a program to solve the problem by using C++ programming language

1. Testing Phase

* Check and verify the correctness of the output.

1. Maintenance Phase

* To ensure that the system is fully functioning before the assignment submission.

1. Prepare a **complete report** (using Microsoft Word) which consists of:
2. **Assignment Cover Page\***
3. **Evaluation Form\***
4. **System synopsis**
5. **Analysis (input, process, output)**
6. **Flow Chart**
7. **Source code**
8. **Two (2) samples of output**

***\* Please use Assignment Cover and Evaluation Form provided***

Submit a softcopy of the program and report (the softcopy saved in a CD/DVD and put the CD/DVD inside an envelope) and attached it with the documentation

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| **GROUP MEMBERS** | | **MATRIC NO.** | |
| 1. | |  | |
| 2. | |  | |
| 3. | |  | |
| 4. | |  | |
|  | |  | |
| **Content** | | | **Marks** |
| 1. **Synopsis of the system** | * describe all the input data needed (2 marks) * describe the process on how program works (2 marks) * describe all the information (output) to be displayed (2 marks) | | /06 |
| 2. **Flow Chart** | Diagrams - use correct diagrams | | /04 |
| Flow of Program - show logic flow | | /04 |
| Explanation - use words to explain the action | | /04 |
| Input - list all the variables needed | | /04 |
| Process - state all the process needed | | /04 |
| Output - list all the variables needed | | /04 |
| **CO3:LO2** | | | **/30** |
| 3. **Source Code** | Correctness - The system can solve the assigned problem and output should be as per the specifications. | | /05 |
| Reliability - The system should function accurately for a long period of time and also function correctly over all ranges and combination of data. | | /05 |
| User friendliness - Easy to use with enough information. | | /05 |
| Efficiency - Use of techniques covered and provides quality output.  - sequential (5 marks)  - selection (8marks)  - repetition (7 marks)  - function (5 marks)  - input /output statements (5marks) | | /30 |
| Readability of code - The source code should be simple and easy to understand. | | /05 |
| 4. **Screen output printed**   * menu (2 marks) * layout creativity (3 marks) | | | /05 |
| 5. **Complexity of a program** | | | /10 |
| 6. **Overall effort in the project** | | | /05 |
| **CO4:LO6** | | | **/70** |
| **TOTAL MARKS = / 100** | | | | |