K. K. WAGH POLYTECHNIC, NASHIK.

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DEPARTMENT OF COMPUTER TECHNOLOGY

Proposal for Micro-Project
Academic Year: 2022-23
Course: Microprocessors (MIC)
Semester: 4 Class: SYCM-I

Institute Code: 0078
Program: Computer Technology
Course Code: 22415 Scheme: I
Date of Proposal: 22/02/2023

Title of Micro-Project: Write an ALP to write a procedure for performing Basic Arithmetic operations

Problem Definition: The objective of this project is to create a modular procedure in 8086 assembly language to perform basic arithmetic operations like addition, subtraction, multiplication, division,square,cube and factorial, without taking input from the user. The procedure will be optimized for maximum efficiency and accuracy, and the result will be stored in a register or memory location as defined in the code. The program will include appropriate comments and documentation for future reference and can be used in other programs by simply calling it. The ultimate goal is to create a versatile and efficient procedure for basic arithmetic operations.

1.0 Aim/Objectives/ Benefits of the Micro-Project:

The Aim/Objectives of the Micro-project is:

- To develop an understanding of assembly language programming and its applications in performing basic arithmetic operations.
- To implement an ALP that can perform operations such as addition, subtraction, multiplication, and division of two numbers.also find square,cube and factorial
- To optimize the ALP to improve the performance and efficiency of arithmetic operations.
- To test and debug the ALP to ensure accurate and reliable results.
- To document the ALP code and provide instructions for its use and modification.
- To explore the potential of the ALP in solving practical problems that require arithmetic operations, such as data processing and scientific calculations.
- To evaluate the limitations and challenges of using assembly language programming for arithmetic operations and compare it with other programming languages.

2.0 Course Outcomes addressed (COs):

CO.1: Write assembly language program for the given problem.
CO.2: Develop an assembly language program using assembler.
CO.3: Develop assembly language programs using procedures, macros and modular programming approach.

3.**0 Proposed Methodology:**

1. Discussing on various topics and finalized one topic of ALP to write a procedure for performing Basic Arithmetic operations
2. Identify the specific arithmetic operations to be performed, such as addition, subtraction, multiplication, or division. also square,cube and factorial
3. Choose an appropriate assembly language and IDE (Integrated Development Environment) for writing and testing the ALP, such as MS-DOS,TASM,TLINK,TD.
4. Write the ALP code using the appropriate assembly language syntax and instructions to perform the chosen arithmetic operations.
5. Test the ALP code by inputting different sets of data and verifying that the output matches the expected results for each arithmetic operation.
6. Optimize the ALP code for efficiency and speed by reducing the number of instructions and minimizing memory usage.
7. Document the ALP code and its functionality, including input and output formats, data types, and any limitations or constraints.
8. Validate the ALP code by comparing it with existing solutions and verifying that it meets the requirements and specifications of the project.
9. Iterate and refine the ALP code as needed based on feedback and testing results.
10. Testing all the modules and making corrections as per guidelines suggested by Guide.
11. Finalised all modules of ALP to to perform basic operations.
12. Generated Final Output.

4.0 Action Plan:

S. No.	Details of activity	Planned Start date	Planned Finish date	Name of ResponsibleTeam Members
1	Searching & finalizing microproject topic.	06/02/2023	13/02/2023	All members
2	Preparing algorithm and flowchart.	13/02/2023	20/02/2023	All members
3	Preparing a micro project proposal	20/02/2023	27/02/2023	All members
4	Coding in ALP to perform basic Arithmetic Operations.	27/02/2023	13/03/2023	All members
5	Testing of all modules and doing corrections if any.	13/03/2023	20/03/2023	All members
6	Preparing a final brief report using MS word.	20/03/2023	10/04/2023	All members
7.	Presentation & Viva of micro project	17/04/2023	24/04/2023	All members

5.0 Resources Required:

S. No.	Name of Resource/material	Specifications	Qty	Remarks
1.	Laptop	HP Elitebook 830 g3-Intel(R) Core(TM) i5, 8 GB installed RAM,SSD-256 GB,HDD-1TB	01	For project work
2.	Operating System	Windows 11 Pro x64 bit	01	For running ALP Tools
3.	Editor	MS-DOS :-1.4v	01	For Editing and Making Changes of ALP
4.	Assembler	TASM :-1.4v	01	For converting ALP to MLL
5.	Linker	TLINK :-2.0v	01	For linking different object files
6.	Debugger	TD :-2.0v	01	For finding and fix errors
7.	Other software	Microsoft Office Word	01	For documentation
8.	Reference book:	The 8088 & 8086 Microprocessor	01	For studying MIC concepts
9.	Websites	www.geeksforgeeks.org www.studytonight.com www.tutorialspoint.com	03	For referring sample ALP & concept

Name of Team Members:

Enrolment No.	Roll No.	Name of Students	Signature
2100780077	06	Baldota Kalash Sachin	
2100780081	10	Bhalerao Mukunda Chandrashekhar	
2100780086	15	Dhakane Aditya Arun	

Date: 22/02/2023

Evaluated by: Signature of Guide: _____

Name of Guide: Ms. P.A.Agrawal