

Faculty of Computing and Information Technology

ASSIGNMENT

MAY 2018 Semester

Course code : AAC3064
Course Title : Computer Systems Architecture

Programme : DIA2
Submission Date : 17/8/2018 - Week 12, Friday, before 12 noon

Instruction to students

Grouping : You are required to work in a team of 2-3 members (from the same tutorial class.)

Instructions :

1. Answer **ALL** questions.
2. Plagiarism is a serious academic offence. Plagiarism in all forms is forbidden. Students who submit plagiarized assignment will be penalized.
3. Your assignment will be assessed based on your ability in solving programming problem using Assembly Language skills.
4. Hand in both hardcopy and softcopy for submission.

Submission Deadline : **Week 12, Friday, before 12 noon 17/8/2018**

Assessment : This assignment carries 40 marks weightage toward the coursework components for the course.

Objective

This piece of assignment aimed to provide students with an opportunity to look into the practical dimensions of the course. This assignment will help students to appreciate Assembly Language and generate Assembly Language program using DosBox 0.74. Integration of knowledge across the topics in the course is expected in this assignment.

Learning outcomes

Upon the completion of this assignment, the students will be able to:

CLO 2: Demonstrate the leadership skills in practise using knowledge of computer systems architecture. (LS, A2)

CLO 3: Construct a program using assembly language. (P, P3)

Resources required

- Reference 1:** Englander, I. 2010. The architecture of computer hardware, systems software and networking: an information technology approach. 4th edn. John Wiley & Sons.
- Reference 2:** Irvine, K. R. 2010. Assembly Language for x86 Processors. 6th edn. Prentice Hall.
- Reference 3:** Abel, P. 2001. IBM PC Assembly Language and Programming. 5th edn. Prentice Hall.
- Reference 4:** Stallings, W. 2012. Computer Organization and Architecture: Designing for Performance. 9th edn. Prentice Hall
- Applications:** Dosbox 0.74 and 8086 Assembler

Late policy

The assignment should be submitted before or latest by the due date (Week 12, Friday, 17/8/2018, before 12 noon.) Unless there is a legitimate reason given with written explanation (with evidence), as a general rule, no extension of time will be granted. Any late submission of the report without legitimate reason will be penalized. Please refer to the penalties as follow for late submission.

Late submission of 1 - 3 days after deadline of submission: minus 10 marks
Late submission of 4 - 7 days after deadline of submission: minus 20 marks
Late submission of > 7 days after deadline of submission: 0 mark

Plagiarism Policy

Guideline to Avoid Plagiarism

Reference: <http://web3.tarc.edu.my/v1/news/newimg/AvoidingPlagiarismHarvard.pdf>

Guideline to Referencing System Used – Harvard Referencing System

Reference: <http://web3.tarc.edu.my/v1/news/newimg/HarvardReferencingSystem.pdf>

Obligations of students

Students are required to sign a Declaration Form to indicate that the work submitted such as coursework or practical assignment, essays or projects, etc is their own work and that they have not in any way knowingly allow other student to copy it. It will be assumed that all the submitted work is that of the students' own work. Students are expected to familiarize themselves with or make use of method(s) of citing other people's work in accordance with acceptable Harvard Referencing System.

Read, complete and sign on the Declaration Form, as per Appendix 2, to be submitted with complete report.

Feedback

A written feedback on the assignment will be returned to the students latest by **week 14** , by the respective tutor-in-charge.

The Submission

Students are required to submit the following on **Week 12** for the final submission. Your assignment submission should adhere to the following format:

1) Hardcopy

Your assignment submission should adhere to the following:

- Paper size : A4 (Double sided) Fastened together all the pages with page number.
- Line spacing : 1.15 line
- Font type : Times New Roman
- Font size : 11pt

2) Softcopy

➤ CD / DVD

- A **.doc** / **.docx** / **.pdf** file for the complete report as per hard-copy.
- A source code files (filename.**asm** file).

Marks will be awarded based on:

1. A **hardcopy** report which includes the following items:

- a) Cover Sheet [Appendix 1]
- b) Declaration Form [Appendix 2]
- c) Table of Content
- d) Solutions

Description		Recommended no. of pages	Marks
I	Introduction about the system (As per proposal) <ul style="list-style-type: none">● Industry selected● Company background● Functions of the Program	2 – 3 pages	10
	<ul style="list-style-type: none">● Formulas used● Assumptions [If any]● Flow chart		
II	Coding & logic (Select 3 advanced features from your program and explain)	6 – 20 pages	25
	I/O design <ul style="list-style-type: none">● Print-screens for the program operation with sample data.● Max 2 screens per page.● Include a label for each print-screen	2 - 10 pages	
	User guide <ul style="list-style-type: none">● Software used● Installation / implementation guide /steps● Login password● Step-by-step guideline to use the program	1 - 2 pages	
III	Personal reflection - Individual	1 page (per person)	5

- e) Reference section
- f) Appendices section [optional]

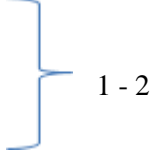
Assignment Question

Tasks to do

1. Suggest an application program / system which includes **arithmetic computations** from anyone of the following industries / system.
 - (a) Agriculture industry (e.g.: Fishing, timber, etc)
 - (b) Finance services industry (e.g.: banking, insurance, etc)
 - (c) Community system (e.g.: society, etc)

Write a proposal on your propose system to the tutor in-charge for approval, with the following criteria.

The Proposal

Description	mended no. of pages
The Proposal (Will be detached as an INTRODUCTION in the final submission.) 1. Member Details (Programme, Class, name & ID) 2. Industry selected 3. Company background 4. Propose Functions to be included 5. Propose Formulas used 6. Assumptions <i>[If any]</i> 7. Flow chart	 1

The confirmation of the proposed system is pending approval by the tutor in-charge.

2. Complete the program
Your program should perform the following requirement:
 - (a) Prompt for user login to begin using the system
 - (b) Provide an avenue for users to enter test data.
 - (c) Perform arithmetic computations.
 - (d) Seek confirmation for the next set of actions to be taken.
 - (e) Perform validation and offer constructive guidelines for correct test data to be key in by the users.
 - (f) Upon the completion of the testing OR user has responded an “N” (NO) to end the testing program, the system must be able to display a summary of the total number of attempt and thank you note.
 - (g) **[Optional]** in 2 decimal places.
3. Write a personal reflection on your experiences, learning, practices and understandings from this assignment.
4. Then, prepare your complete solution according to the submission requirement.

Sample output:

```
~~~~~TC Fish Market ~~~~~

Login:
Invalid login. Please try again.

~~~~~TC Fish Market ~~~~~
Login:

-----
-
Welcome to TC Fish Market!
-----
-
Staff ID: FM01

Main Menu (Press '0' to back to main menu)
-----
Menu: Enter "A" to "C" for computation option.
-----
  · Fish Weight calculator
  · Fish Price calculator
  · Exit

Selection: A

Fish Class: Enter "1" to "5" for the fish class.
-----
  · Sardine           = RM 11/kg
  · Indian Mackerel  = RM 14/kg
  · Red Bream        = RM 15/kg
  · Striped Threadfin= RM 30/kg
  · Salmon block     = RM40/kg

Selection: 3

#(A) Fish Weight Calculator
-----
Formula (per fish): [(girth x girth) x length] / 800

Enter fish's girth (in inches) : 8
Enter fish's length (in inches): 15
```

Sample Output: Continued

```
Fish Class: Enter "1" to "5" for the fish class.
-----
*   Sardine           = RM 11/kg
*   Indian Mackerel   = RM 14/kg
*   Red Bream         = RM 15/kg
*   Striped Threadfin = RM 30/kg
*   Salmon block      = RM40/kg

Selection: 3

#(B) Fish Price Calculator
-----

Fish class           : Red Bream
Unit price (in kg)   : MYR 15
Quantity (in piece)  : 5
Estimated weight (in kg): 1.2
Total weight(in kg)  : 6
Price                : MYR 90
GST (6%)             : MYR  5.40
Total amount         : MYR 95.40

Continue? Y/N: N

~~~~~
~
~
Transaction Summary
~
~
~
No. of transaction(s): 1
~
~
~
THANK YOU
~
~
~
```

End of Assignment Question



Faculty of Applied Sciences and Computing

Assignment

May 2018 Semester

Course code : AAC3064
Course Title : Computer Systems Architecture

Students' Name & ID No. : Name: _____ ID. No.: _____
 Name: _____ ID. No.: _____
 Name: _____ ID. No.: _____

Programme* : DIA2

Tutorial Group : _____

Tutor : Mr. Wong Hon Yoon / Mr. Loh Kian Nyak

[* Circle whichever is appropriate.]

Submission Date : 17/8/2018 - Week 12, Friday, before 12 noon

Members' Name	Introduction	Coding & logic	I/O design	User guide	Personal reflection	Total
	(10marks)	(25 marks)			(5 marks)	(40 marks)
1)						
2)						
3)						

Comment:

Date of submission :

Date received :
 (to-be filled by the tutor received)

Semester: _____ Course Code & Title: _____

Declaration

I/We confirm that I/we have read and shall comply with all the terms and condition of TAR University College's plagiarism policy.

I/We declare that this assignment is free from all forms of plagiarism and for all intents and purposes is my/our own properly derived work.

I/We further confirm that the same work, where appropriate, has been verified by anti-plagiarism software _____ *(please insert)*.

Signature(s): _____ [By all members]

Name(s): _____ [By all members]

Date: _____

Introduction	0 - 3 mark	4- 7 mark		8-10 marks
	Insufficient background context provided.	Comprehensive and sufficient background context provided.		Excellent background context provided.
Coding & logic	0 – 5 marks	6 – 12 marks	13 – 20 marks	21 - 25 marks
	Unable to present the symbolic codes which are dynamic and reusable.	Able to present the symbolic codes which are dynamic.	Able to present the symbolic codes with little dynamic and reusability.	Able to present the symbolic codes which are dynamic and reusable.
	Poor in coding and implementation of control statement.	Able to use codes, registers & implementation of control statement.	Appropriate use of codes, registers & implementation of control statement.	Efficient and appropriate use of codes, registers & implementation of control statement.
	Unable to demonstrate a well logically flow program and error occurs	Able to demonstrate logical flow with some unintended syntax errors and errors during assembly and program run time.	Able to demonstrate a well logical flow with minimum unintended syntax errors and errors during assembly and program run time.	Able to demonstrate a well logical flow without unintended syntax errors and errors during assembly and program run time.
I/O design	Poor / brief in input/output design.	Proper but simple input/output design.	Effective and efficient input/output design.	Consistent, effective and efficient input/output design.
User guide	Unable to present a user guide.	Inconsistent details on user guide.	Able to present a consistent and clear user guide.	Able to present an excellent user guide with details illustration and steps.
Personal reflection	0 mark	1 - 2 mark	3 - 4 marks	5 marks
	Unable to reflect on experiences, learning, practices and understanding	Seek out and reflects on experiences and from various sources	Demonstrate ability to reflect, understand and make connections between theory and practice	Demonstrate learning and growth from self-reflection on experiences, learning, practices and understandings