Computer Science 3B

Practical Assignment 00

Assignment date: 2024-07-18

Deadline 2023-07-18 17h00

Marks: 40

This practical assignment must be uploaded to eve.uj.ac.za **before** 2023-07-18 17h00. Late[1] or incorrect submissions **will not be accepted**, and will therefore not be marked. You are **not allowed to collaborate** with any other student. Plagiarism is not tolerated. All submissions are tested for plagiarism.

Good coding practices include a proper coding convention and a good use of commenting. Marks will be deducted if these are not present.

The reminder page includes details for submission. Please ensure that **ALL** submissions follow the guidelines. The reminder page can be found on the last page of this practical.

BeatWatch is company aiming to be the best in IOT fitness devices. They are planning to use 80x86 assembly programs to test their ideas and create their system. They have tasked you with creating the first step in their endeavour to pilot such a system.

In order to present useful data to their clients **BeatWatch** is using a simplified formula to calculate calories burned:

$$\text{calories} = \left(\frac{\text{AHR} \times \text{duration}}{100}\right) + \left(\frac{\text{steps}}{20}\right)$$

where

calories amount of calories burned
AHR average heart rate
duration duration of workout (in minutes)
steps number of steps taken, step count

You are only allowed to create global variables for the terms specified above (i.e. no temporary variables). **Note**: all input values are integers! **Note**: No output is needed!
Testing set - Use these values to test your program:

AHR	Duration	Steps	Calories
161	109	12323	791.64
80	73	12061	661.4499
126	36	13100	700.36
214	18	9089	492.9699
164	78	4288	342.32

[1] Alternate arrangements for exceptional circumstances will been posted on eve.

Mark sheet

1.	Division	**[05]**
2.	Multiplication	**[05]**
3.	Structure and layout (no temporary variables, correct data types)	**[05]**
4.	Commenting	**[05]**
5.	Correct execution	**[20]**
	Total	**[40]**

NB

Submissions which **do not assemble** will be capped at 40%!

Practical marks are awarded subject to the student's ability to explain the concepts and decisions made in preparing the practical assignment solution.

(Inability to explain code → inability to be given marks.)

Execution marks are awarded for a correctly functioning application and not for related code.

Reminder

Your submission must follow the naming convention below:

`SURNAME_INITIALS_STUDENTNUMBER_SUBJECTCODE_YEAR_PRACTICALNUMBER`

Example: `Berners-Lee_TJ_209912345_CSC03B3_2024_P00`

Surname	Berners-Lee	**Module Code**	CSC03B3
Initials	TJ	**Current Year**	2024
Student number	209912345	**Practical number**	P00

Your submission must be **a single zip (compressed) file**!

Your submission must include the following:

File	Naming	Folder	Purpose
`Design`	`STUDENTNUMBER_P00.pdf`	`docs`	Contains your program design. All files must be in **PDF** format. Your details must be included at the top of any **PDF** files submitted[0].
`Source`	`STUDENTNUMBER_P00.asm`	`src`	Contains all relevant source code. Your details must be included at the top of the source code[0].

Multiple uploads

Note that only **one** submission is marked. If you already have submitted once and want to upload a newer version then submit a newer file with the same name as the uploaded file in order to overwrite it.

[0] Failure to correctly indicate your details will result in a penalty.