



Introduction to Computing **(CS101)**

Assignment # 01
Spring 2021

Total marks = 20

24 May 2021

Please carefully read the following instructions before attempting assignment.

RULES FOR MARKING

It should be clear that your assignment would not get any credit if:

- The assignment is submitted after the due date.
- The submitted assignment does not open or file is corrupt.
- Strict action will be taken if submitted solution is copied from any other student or from the internet.

You should consult the recommended books to clarify your concepts as handouts are not sufficient.

You are supposed to submit your assignment in **.doc or docx** format.

Any other formats like scan images, PDF, zip, rar, ppt and bmp etc will not be accepted.

Objectives:

- **To understand how computers manipulate and store data.**
- **To learn how computers are programmed by means of machine language instructions.**

NOTE

No assignment will be accepted **after the due date via email in any case** (whether it is the case of load shedding or internet malfunctioning etc.). Hence, refrain from uploading assignment in the last hour of deadline. It is recommended to upload solution file at least two days before its closing date.

If you find any mistake or confusion in assignment (Question statement), please consult with your instructor before the deadline. After the deadline, no queries will be entertained in this regard.

For any query, feel free to email at:

cs101@vu.edu.pk

Questions No 01**Marks (10)**

Given is a snapshot of memory addresses E2 to F4 and CPU registers 0 to F. All bit patterns in the memory cells are represented in hexadecimal notation.

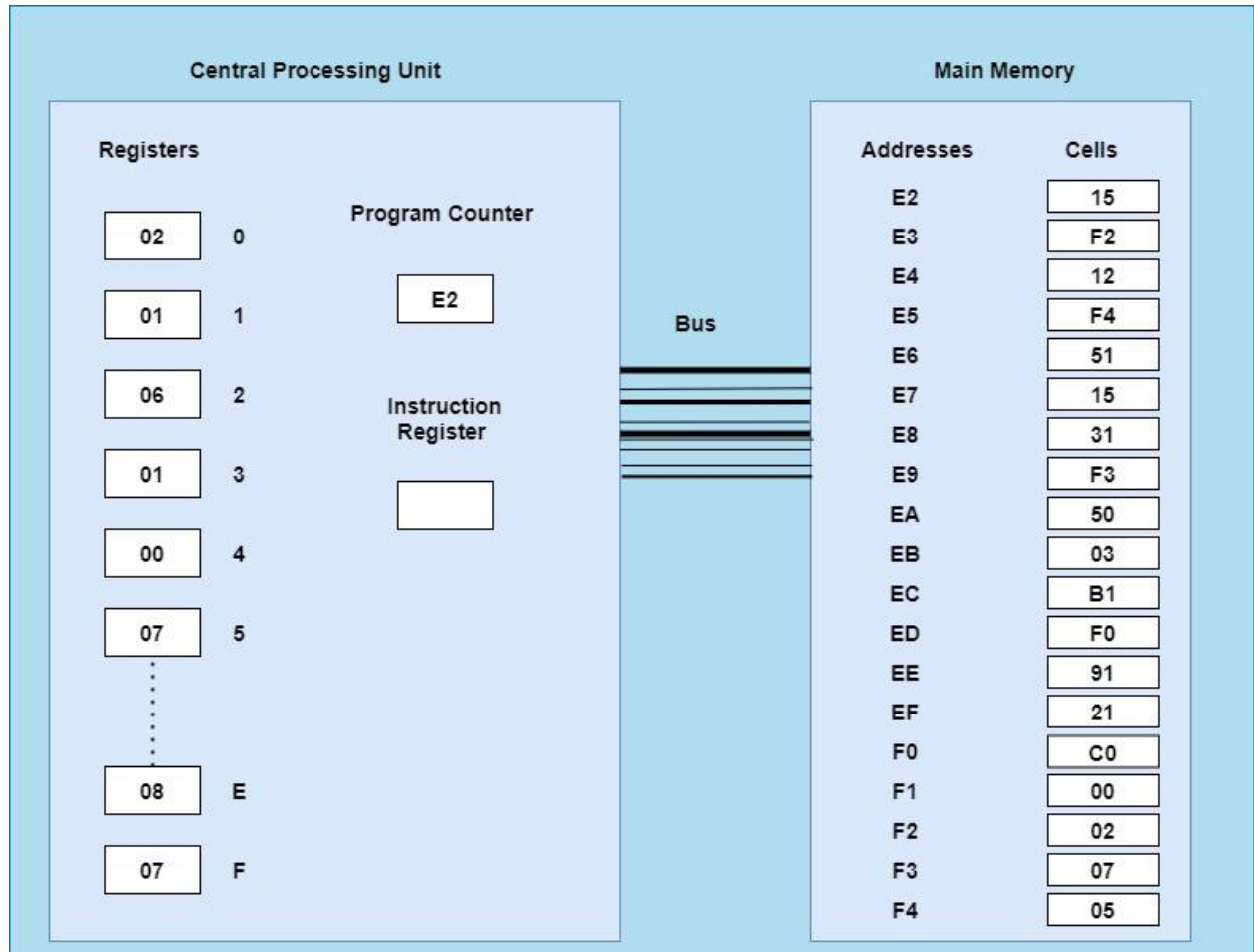


Figure 1: Snapshot of a program stored in main memory for execution

Assume that the Program Counter has E2 as its initial value. Using the information provided in the above Figure 1, answer the following questions.

1. Determine the contents of register 1 when the machine halts.
2. Write down the bit pattern (in hexadecimal) at memory address F3 when the Halt instruction is executed.
3. How many times the machine instruction at address EE is executed before the machine halts.
4. Determine the contents of register 0 after the instruction at address EC is executed.
5. Determine the contents of register 2 when the instruction at address F0 is executed.

Note: Use the table provided in Appendix C at page 581 of book.

Questions No 02**Marks (10)**

- a. Perform binary addition on given numbers:
 $20\frac{1}{16}$ and $7\frac{1}{4}$.
- b. Convert the following binary number into ASCII code and then into its equivalent decimal representation.
01001001010000010100110101011100