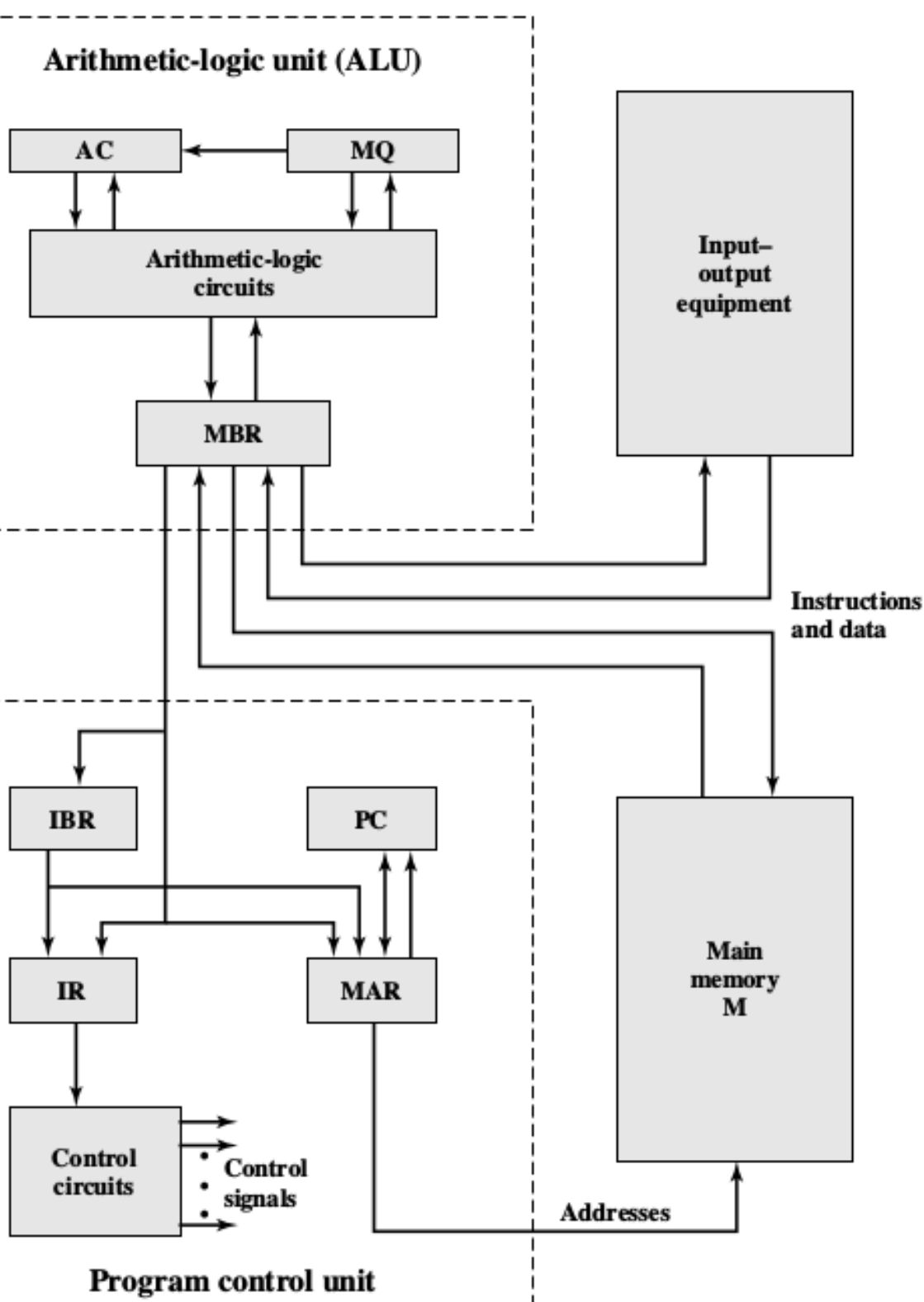# Assignment 1

- Individual assignment, not a group assignment

- You can choose to do the design in any language you wish, C, C++, python, Verilog etc

- Submit your codes, results (result file/snapshot etc) on LMS.

- Rename the filename of your code to <roll_number>_filename.< >

- Discussion amongst students is encouraged. Submitting the same code is not allowed

  - Excuses such as "I shared my code with a friend. I was not aware that he/she will upload the same file" will not be encouraged.

- All codes will run through a plagiarism check. Files found similar with get a 0 for the assignment. Repeat offence will attract Grade penalty on the overall grade

- Submit by Aug 28 2020, 11:59pm

- Marks: 20

Arithmetic-logic unit (ALU)

AC ← MQ

Arithmetic-logic circuits

MBR

Input–output equipment

Instructions and data

IBR

PC

IR

MAR

Control circuits • Control signals •

Main memory M

Addresses

Program control unit

Implement the IAS computer (fetch the instruction, decode and execute)

Implement any assembly program of your choice to test the design

You can test more than one program if you wish to do more rigorous testing of the design

No need to implement I/O.

Memory implementation is required

Indicate the program that you are implementing
Write the machine code for the IAS machine, save it in memory
The program can be small, but it has to perform the desired operation on your design.
Example code that you can implement is shown below. This will translate to about 8 to 9 assembly instructions. This needs to be translated to machine code as per the ISA of this machine

You are encouraged to come up with the program on your own

```
main () {
int a=15, b=5, c;
if (a >= b)
c = a – b;
else
c = a + b;
}
```