

CSC258: Computer Organization

CSC258 is a transistor-to-assembly survey of modern computer implementation. The course has two prerequisites. First, you should be comfortable learning new programming languages and be able to relate low-level code to higher level language structures like loops and branches (CSC148). Second, you must be comfortable with formal logic and basic set theory (MAT102).

We'll spend most classes working on examples, talking about particularly tricky concepts, and trying to connect ideas between this course and other courses. This worksheet is an example of the kind of activities we'll be doing this term. The questions below are intended to remind you to some of the "prerequisite" concepts for the course and to build connections to some of the material that you read about in preparation for this class meeting.

First, we'll spend about five minutes working individually and thinking. Then, I'll ask you to find a partner with whom you have *never* worked. Introduce yourselves, and then spend ten minutes sharing and discussing your ideas for solving the problems. Then, we'll take up the questions as a group.

1. Number Systems

Which of the following are a representation of the number 12? Explain your answer.

1. 1100
2. 0011
3. 00000 - 10100
4. The fingers on three hands.

5. A foot.
6. 111111111111
7. C
8. 14
9. The number of eggs in a single, typical carton.
10. A circle containing an arrow pointing up.

2. Programming

Consider the following Python code:

```
# Assume m is previously defined
count, n = 0, 1
while n < m:
    if m % n == 0:
        count = count + 1
    n = n + 1
```

Draw a flowchart that reflects the execution of this code. Then, identify the different elements in the flowchart. How many unique elements can you identify?