

## FCS152 Tutorial 07

### Counting

1. How many string of hexadecimal digits consist of from one through four digits? How many such strings consist of from three through five digits?
2. How many arrangement of no more than three characters can be formed using the characters from FCS152 with no repetitions allowed?
3. How many four-digit integers (integers from 1000 to 9999) are divisible by 5?
4. In certain country, the car license plate consists of 1 to 3 alphabets (upper case) only followed by 1 to 4 digits. How many difference license plates can be produced? If 756 combinations are deem offensive therefore not allowed, how many license plates can be produced?
5. Given a set of 29 students, where 8 need housing and financial aid; 12 need housing, financial aid, and an e-mail account; 17 need an e-mail account and financial aid; 23 need housing, 20 need financial aid, 19 need e-mail accounts, and 4 students don't need anything.
  - a. How many students need both housing and e-mail?
  - b. Change the numbers to 57, 8, 3, 21, 21, 32, 31, 8. What is your answer now? Which answer is bogus and why?
6. There are 14 students in a class of CS students.
  - a. How many ways can a group of seven can be chosen to work on a project?
  - b. Suppose ten students are male and four are female
    - i) How many groups of seven can be chosen that contain 4 males and 3 females?
    - ii) How many groups of seven can be chosen that contains at least 1 female?
    - iii) How many groups of seven can be chosen that contains at least four males?