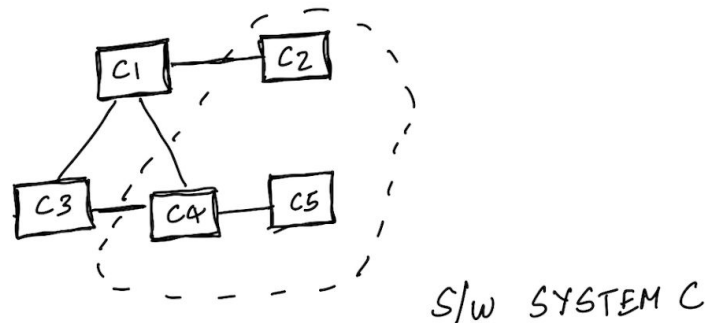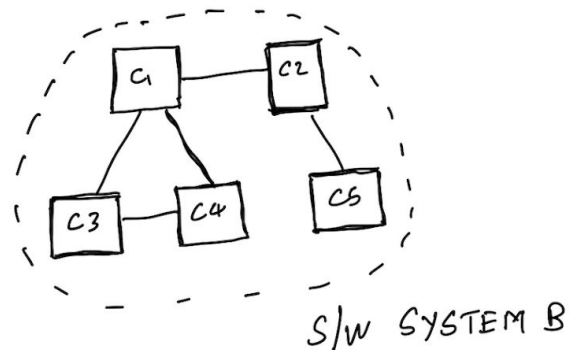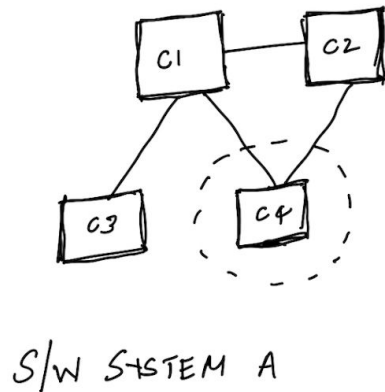# CS 362 - Software Engineering II
Homework 3

Question 1   **10 Points**

Take a look at the software systems below. Assume that the following software systems contain the following components. There are 3 Software systems A, B, and C that consist of individual components within them.

S/W SYSTEM A

S/W SYSTEM B

S/W SYSTEM C

Observe the dotted lines. Based on the dotted lines answer the following:

i) Which of the 3 systems would you apply unit testing to and why?
ii) Which of the 3 systems would you apply integration testing to and why?

iii) Which of the 3 systems would you apply system testing to and why?

Deliverable:

i) For System A, look at the dotted lines and describe whether you'd apply unit/integration/system testing and explain why.

ii) For System B, look at the dotted lines and describe whether you'd apply unit/integration/system testing and explain why.

iii) For System C, look at the dotted lines and describe whether you'd apply unit/integration/system testing and explain why.

Question 2

From **In-class activity 1**:   **10 Points**

Remember the question where you were asked to draw the structure of a social media platform of your choice?

In the context of that system answer the following -

i) What specific verification and validation would you perform on this system? Give 2 examples for each.

ii) What are some of the functional and non-functional tests that you would run on the system? Give 2 examples for each.

Deliverable:

Revisit your system from *In-class activity 1*. Describe or draw your system. Assuming that it has a few components within it, answer the following:

i)Verification with 2 examples
Validation with 2 examples

ii) Functional tests 2 examples
Non-functional tests 2 examples

You could use the below examples as a starting point.

Functional
i) Does clicking "save" actually create a post on my timeline?
ii) Does the user get a notification when he/she receives a message?
Non-functional
i) Does the homepage load in less than 3 seconds?
ii) Does the tweet support more than 140 characters?

Your answers should be more elaborate

Question 3   **10 Points**

Version Control

Leap year program

i) Assuming that you have not written the leap year program with error handling the input in mind, write the program with error handled input.

ii) You will check in the following to Github:
a. Leap year code without error handling
b. Leap year code with error handling
c. The flowchart in the readme.md file.
For part, c refer to [this](#).

Provide the URL to your git repository in the pdf that you submit.

Question 4   **10 Points**

You are now aware of Agile and Waterfall methodologies. How would testing differ between both the methodologies?

Deliverable:

You have two methodologies - Agile and Waterfall. How would the software testing process be carried out in both of these methodologies? Write down 2 differences with a project as an example.

i) Describe a project in a few words.
ii)In the tabular form below explain how you'd apply testing in waterfall(2), how you'd apply testing in agile(2).

Testing in Agile	Testing in Waterfall