CSC C01 Midterm Test

30 October 2015

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

In the meantime, complete the front page AND the back page.

Last name: _____

First name: _____

Student number: |_|_|_|_|_|_|_|_|_|_|_|_|_|

Rules:

1. When you receive the signal to start, please make sure the copy of your examination is complete.
2. Legibly write your name and student number on this page. Legibly write your name on the back page.
3. There are a total of 48 marks and 3 problems.
4. Total time is 100 minutes.
5. The exam is closed book, and no aids of any kind are allowed.
6. Write your answers directly on the exam in the space provided, or on the blank page provided at the end. If you use the blank page, be sure to write the number of the problem that you are continuing to solve next to your (continued) answer.
7. You may use a pencil; however, work written in pencil will not be considered for remarking.

Question 1. [16 MARKS]

Your company has a contract to build an online dating system. The client plans to attract customers by providing free browsing and matching functionality, but charging for allowing users to contact other users. For example, a user should be able to register, create a profile, and search for "soul-mates" (a short list of users who are determined as "best match" according to a matching algorithm), all without paying. Then, if they want to email or send a message to another user, or receive an email or view a text message from another user, they need to upgrade their membership by making a payment.

Part (a) [4 MARKS]

Briefly describe two Personas that would be useful for the design and development of your system.

Part (b) [6 MARKS]

Write six user stories based on the description of the required system. Choose the most important system features for your user stories. Include user stories for both of the Personas you have described in the previous question.

Part (c) [6 MARKS]

Sketch a design for your system. While you do not have to explain what each component does, you must choose descriptive names for your components, so that their purpose is evident from the diagram.

Briefly describe how the components interact with each other.

Question 2. [12 MARKS]

You are managing a team of five developers: Aki, Bo, Cai, Datta, and Elsa. It is October 30, and currently Aki and Bo are working on developing FeatureX, and Cai and Datta are working on developing FeatureY, and Elsa is stuck with updating a user guide.

In your current backlog, FeatureX has a higher priority than FeatureY. According to the plan, both features should be finished by the end of the day on November 3 and the user guide should be done by the end of November 2.

Part (a) [4 MARKS]

Provide a careful sketch of an effective use of version control software to aid in development in the above scenario. Clearly indicate all dates, branch points, synchronizations, commits, merge points.

Part (b) [4 MARKS]

On November 1, you find out that a third party software package that you have been using in your development has just released a security patch, and you need to incorporate this change into your code. Of course, you re-plan. Provide an updated sketch.

Part (c) [4 MARKS]

Recall your Exercise 2. You submitted two versions of some Python code: one for Python 2 and another for Python 3. You used two branches, `python2` and `python3` to maintain the two versions.

In order to grade your exercise, I created a tester file `test.py`. To grade your Python 2 version of the code, I need to run the command `python2 test.py` and, similarly, to grade the Python 3 version, I need to run `python3 test.py`.

Suppose I want to place two files, both called `result.txt`, that contain the outputs of my two test runs, in the two corresponding branches in your repository. Assume that the file `test.py` is in the directory `/home/anya/c01/e2` on my computer.

Give a sequence of **git** commands that I need to issue in order to grade your exercise as described above.

Question 3. [20 MARKS]

Recall that in class we talked about a moderately efficient team of three developers: Yang, Per, and Paco. Their iteration is 1 work-week long. In their project 1 story point corresponds to 2 developer-hours. This time each of them contributes equally to the project — 3 story points per day.

Part (a) [1 MARK]

How many story points should they estimate to complete in this iteration?

Part (b) [1 MARK]

What is this measure called?

Suppose they have the following tasks on the table:

task ID	estimated cost	value
1	7	3
2	12	4
3	3	2
4	4	5
5	6	10
6	2	6
7	6	8
8	5	9
9	5	7
10	6	1

Part (c) [5 MARKS]

Produce an iteration plan.

And of course, things changed.

- Paco could not work on Days 2 and 3 because his C85 students needed help with the project.
- Per found a third-party software package that reduced the cost of Task 2 to 4 story points.
- Yang called in sick on Day 3.

Part (d) [5 MARKS]

Show an updated iteration plan.

Part (e) [8 MARKS]

Show their burndown chart for this iteration. Label the axis and all the points on the chart.

Use the space below for rough work. This page will not be marked unless you clearly indicate the part of your work that you want us to mark.

Last name: _____

First name: _____

Total Marks = 48