

Open Source Software — CSCI-4961 — Summer 2019

Test 1

June 28, 2019

Name: _____

RCS ID:

								@rpi.edu
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RIN#: _____

Honor pledge: On my honor I have neither given nor received aid on this exam.

Please sign here to indicate that you agree with the honor pledge: _____

Instructions:

- Clearly print your name, RCS ID (in all caps.) and your RIN at the top of your exam.
- This test is open book, open notes and open computer. You **may** not use the internet. Please turn off your wifi.
- There are **7 questions** on this test worth a total of **100 points**.

Question	Score	Possible
1		10
2		14
3		15
4		9
5		12
6		15
7		25
Total		100

1. Answer the following short questions (10 pts)

- (a) Eric Raymond wrote, “Before asking a technical question by e-mail, or in a newsgroup, or on a website chat board, do the following:” and then listed 7 actions. List any 4 of them (4/10 pts)

1 -

2 -

3 -

4 -

- (b) Name the RPI student who was sued by the RIAA for copyright infringement (1/10 pts)

• -

- (c) Given the following regex expression `^[a-zA-Z](.*)\.(html|jpg)$`, indicate **Match** if the string would be a match, or **No Match** if it would not. (5/10 pts)

1 test.html

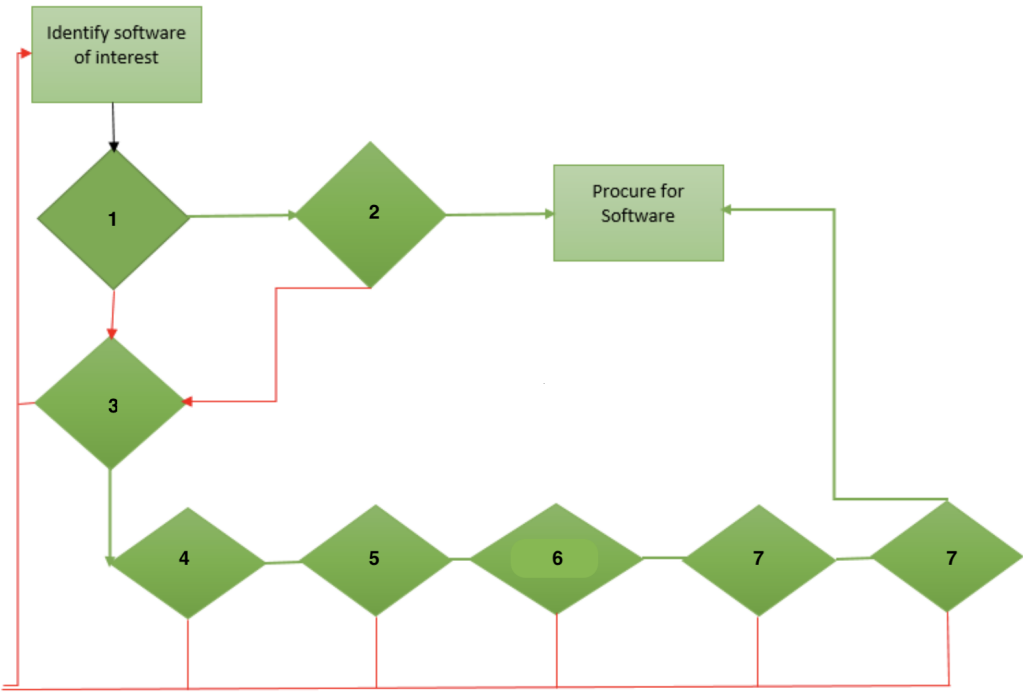
2 2a38588hfquh.jpg

3 jpg.r

4 a@p239552u7894aghe.jpg

5 htmljpg

2. The diagram below represents a normal (non-open source) software procurement cycle. Fill in the diagram with the terms needed to complete it. (We know that 7 appears 2 times.)(14 pts)



1 -

2 -

3 -

4 -

5 -

6 -

7 -

3. The Open Source Initiative defines 10 characteristics of open source software. For each of the following actions, indicate if the action is allowed or prohibited and the characteristic which allows or prohibits it. (15 pts)

For example, for:

Require a recipient of a derived work to contact the original author to get a license the answer would be:

Prohibited, Distribution of License clause

Each correct answer is worth 3 points with the **Allowed** or **Prohibited** worth 1 point and identifying the appropriate characteristic worth 2 points.

- (a) The author of a source code distribution allows the original code to be freely distributed, but requires that any derived works be distributed under an AGPL license. (Original license is not AGPL)

- (b) A user (recipient) gets a USB distribution of an open source family of products, all of the code on the USB is related and licensed similarly. The user extracts one program from the USB and redistributes it as an independent program.

- (c) An author requires that her source be maintained unchanged in any derivative works, but allows recipients to use *git patch* files to implement and distribute modifications to the code.

- (d) An author distributes source under a BSD license, but adds a clause that prohibits the software from being used by the military or by nuclear power plants.

- (e) A user downloads the source code of several open source project from repositories on github onto a \$4.00 USB and then sells the offers the USB for sale on EBAY for \$10000 without paying or offering remuneration to the original author.

4. Define the following types of intellectual property rights (9 pts):

(a) Copyright

(b) Patent

(c) Trademark

5. Write LaTeX code to duplicate the document below. You can assume the photo is “images/pelican.jpg”. Your text should go on the next page. (12 pts):

1 First Section

We have some text with an an inline equation $x = \sum_0^{100} x^2$. It extends on until it wraps around.

We have a new paragraph. Extend it to wrap as well. Below is a picture of a pelican.



And of course we need a table:

1	middle	left
2	middle	left
3	middle	left

Write your LaTeX in the box below (we gave you a start with some declarations):

```
\documentclass{article}
\usepackage[pdftex]{graphicx}
```

6. Consider the following scenario. You are working in a “blessed” repository configuration. On your laptop you have a clone of your fork with two remotes set up. The remote **origin** points to your forked repository and **upstream** points to the blessed repository. All three repositories are out of synch. You can assume the blessed repository (*upstream*) has:

- a new file “d.cxx”

and your fork (*origin*) has:

- a new file “e.cxx”.

Your local repository on your laptop has

- a new file named “a.cxx” and
- two modified files “b.cxx” and “c.cxx”.

Your goal is to get all of these changes in the master branch in your fork (*origin*) so you can make a pull request to the blessed repository. Give the sequence of git commands required to reach the state where all changes are present in your fork and you are ready for the pull request. (15 pts)

Write your git commands below

7. Consider the “Makefile” shown below.

```
m1: m1.o liba.a libb.so
    cc m1.o liba.a libb.so -o m1 -Wl,-rpath .
m2: m2.o libb.so
    cc m1.o libb.so -o m1 -Wl,-rpath .
m1.o: m1.c
    cc -c m1.c -o m1.o
m2.o: m2.c
    cc -c m1.c -o m1.o
libb.so: b.o
    cc -shared -o libb.so b.o
liba.a: a.o
    ar qc liba.a a.o
b.o: b.c
    cc -fPIC -c b.c -o b.o
a.o: a.c
    cc -c a.c -o a.o
m2.o: i.h
a.o: i.h
```

- (a) Draw the dependency graph that depicts the Makefile below. Use dotted lines for implicit dependencies. (10 pts)

- (b) Makefiles should always have “all” and “clean” targets. Write the dependencies and commands for all and clean below (5pts):

- (c) Now turn the Makefile into a CMakeLists.txt file. Add the commands to generate an install target to install “m1” and “m2” into “bin” and the shared library into “lib” (10 pts):

CMakeLists.txt: