# **Assignment Instructions**

Below are the questions for the assignment. Write your answers in the separate Answer document Optional challenge questions are just for your own learning; they do not count toward grading.

For ALL Word processing documents, you must submit your documents in one of the following formats: MS-Word (.doc/.docx) or PDF (common read only format). They will be returned ungraded if submitted in any other format.

Submit assignments all assignments via elearn - attach your word document or PDF to your submission. Do NOT copy and paste your document into the submission text box.

## **Binary And Bits:**

**Q1:** What does the picture below show? Make sure to specify what the <u>red line</u>, <u>gray line</u> and <u>dotted line</u> represent, how they are related, and why the red/gray line are different.



**Q2:** Computers sometimes use electricity on a wire to represent a bit of information. What is another physical method computers sometimes use to store/represent a bit of information?

Q3: How many bits (not bytes!!!) are in 5 kilobytes? (Show your work to calculate)

## **Binary Number Representation:**

Q4:

- a) What is the smallest number of <u>bits</u> that can be used to represent the decimal value 90 in <u>binary</u>?
- b) What is the largest numeric value (in decimal) that you can represent with 6 bits?

**Q5:** Convert the decimal number **19** to its binary equivalent <u>using the division by two method</u> from Chapter 4.3 of CS160 Reader. **SHOW YOUR WORK THAT DOES THE CONVERSION!** 

CS160	Assignment #2: Binary	Representations, Page Rank & Functions
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# Page Rank Algorithm:

#### Q6:

In figure 1 below, we start the random surfer algorithm that PageRank uses on page 5. Will it ever reach page 2? Why or Why not?



Q7: In Figure 1, focus on just pages 0, 1 and 2. Which page would have the lowest authority (popularity)? Why?

**Q8:** In Figure 2, page 5 and page 7 both have one incoming link. Why is page 5 more "popular" than page 7?



#### Continues...

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### **Programming:**

Complete Code.org programming lessons for this week.

This will go into your "programming practice grade". There is nothing to submit for this – I will check your progress through Code.org. Partial credit is possible if you only finish some of the parts.

You will get NO CREDIT FOR THIS if your display name in Code.org is not set to your Chemeketa user name. (for <u>bsmith12@my.chemeketa.edu</u> the display name should be **bsmith**)

#### Assignment Problems:

**These are a graded part of this assignment.** You will paste a screenshot of your drawing into the answer document along with the text for your code (NOT a screenshot of the code).

#### Q9:

Use Lesson 3.6.2's or 3's work area to write code to draw the shape shown below. Paste in a screenshot of your drawing and the complete text version of your code. Your score depends not only on making the correct shape, but on using multiple functions that call each other with descriptive names.

- Level 1 : Draws most of the shape, has at least one function.
- Level 2 : Draws shape. Has at least two functions that have meaningful names
- Level 3 : Draws shape. Has at least two well named functions, layered so that at least one function calls other function(s)
- Level 4 : Draws shape. Has well-named, layered functions. Each function is a reasonable length and does one clear job.

A function probably shouldn't be much more than 10 lines of code. Anything much longer should be broken into sub-tasks handled by other functions.



To find out how to take a screenshot of just a part of your screen, google "Windows region screenshot" or "Mac region screenshot". I do NOT want screenshot of your entire screen.

**Q10:** From Lesson 3.7.10 paste in the screenshot of the picture your program drew and the text version code you used to do it.