UNCA CSCI 107
Ordinary Exam 1
17 November, 2015

This is a closed book and closed notes exam. It is to be turned in by around 10:40 AM for the morning section and 2:20 PM for the afternoon section. That will give you enough time for the practical.
Communication with anyone other than the instructor is not allowed during the exam. Calculators may be used during this exam, but cell phones and any other electronic or communication devices may not.

Name:_____

Problem 1 (4 points) Database query A
Complete the following table to make a query for all customers with the FirstName of 'George' and LastName of 'Jetson'.

Field:	CustomerID	LastName	FirstName	City	State	Zip
Table:	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER
Sort:						
Show:	☑	☑	☑	☑	☑	☑
Criteria:						
or:						

Problem 2 (4 points) Database query B
Complete the following table to make a query for all customers with a ZIP code in western North Carolina or, more precisely, any ZIP between 28700 and 28799, inclusive.

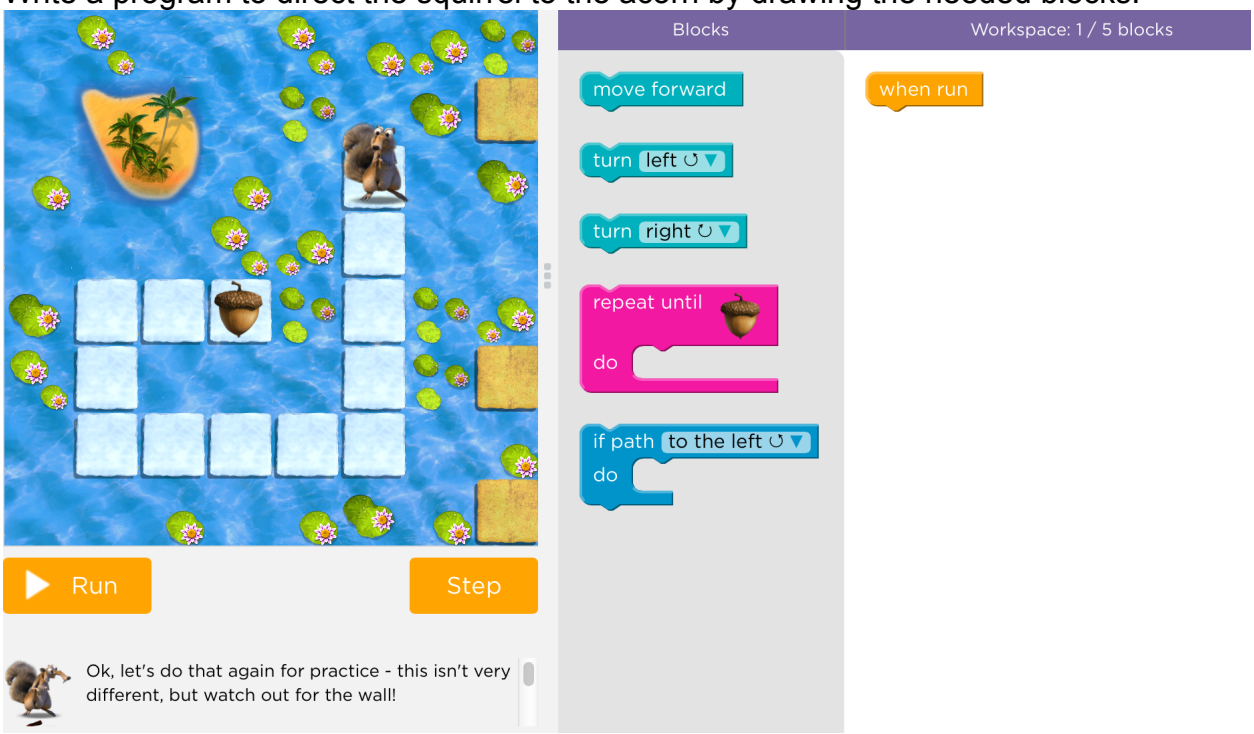
Field:	CustomerID	LastName	FirstName	City	State	Zip
Table:	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER
Sort:						
Show:	☑	☑	☑	☑	☑	☑
Criteria:						
or:						

Problem 3 (4 points) Database query C
Complete the following table for all customers whose CutomerID is 107 or 255.

Field:	CustomerID	LastName	FirstName	City	State	Zip
Table:	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER
Sort:						
Show:	☑	☑	☑	☑	☑	☑
Criteria:						
or:						

Problem 4 (10 points) Hour of code
Write a program that directs Steve to shear the sheep. (If Steve is next to a sheep and executes the `shear` command, the sheep is sheared. Steve is facing a sheep right now.)

Problem 5 (13 points) Hour of code
Write a program to direct the squirrel to the acorn by drawing the needed blocks.



Let's do this like they do math in elementary school today!
You must *briefly* explain your reasoning for each answer *or* show the formula.
Some of explanations will be very brief.

Problem 6 (5 points)
How many values can be encoded using 4 bits?

Problem 7 (5 points)
If you want to encode 66 possible values, how many bits are needed?

Problem 8 (15 points)
How many pixels are required to encode an 800x1000 image?

If each pixel is encoded in 24 bits, how many bits are required to store the image?

If the image is stored in a file, what is the size of the file in kilobytes?

Problem 9 (5 points)
What is the range of hearing, in frequency, for most students majoring in Computer Science?

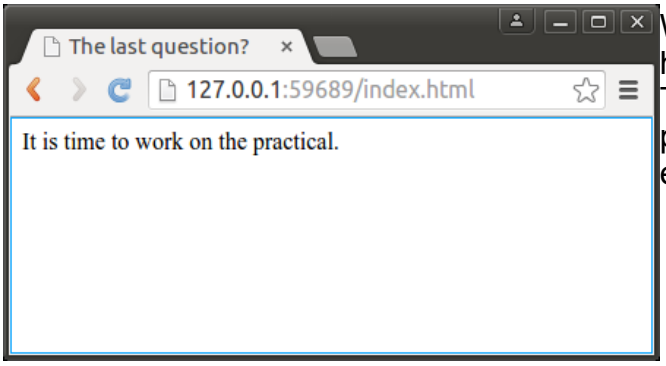
Problem 10 (5 points)
Suppose a logo, like Coca-Cola, needs to be rendered in many different sizes. Is it best to use a raster or vector representation? Explain your answer in a sentence or two.

Problem 11 (5 points)
Why do cell phones store images in JPEG format?

Problem 12 (5 points)
Why was the logo on the left, which appears on the UNC Asheville homepage, saved in PNG format?

Problem 13 (5 points)
Give an example of a CSS selector and declaration that will cause the font used in paragraphs to be of size 12px. (Hint: the relevant property is `font-size`.)

Problem 14 (15 points)



Write some HTML that might describe how the page on the left was generated. The single sentence is contained in a paragraph. Try to include some of the expected top-level HTML elements.