

CSC 110: Fundamentals of Programming I
Fall 2016
Assignment #1: Introduction to Programming

Due date

Noon (12:00 pm) on September 23rd by submission to connex.

How to hand in your work

Submit the requested files for parts (b) and (c) (see below) through the Assignment #1 link on the CSC 110 connex site. Please make sure you follow all the required steps for submission (***including final confirmation of your submission***). Part (a) is not marked.

Marking

Your mark will be based on:

- Your code compiling and running.
- Your code producing the output exactly as requested, and calculating the object's dimensions correctly.
- Your code indented and appropriately documented via comments. (Please follow the guidelines in `codingConventions.pdf` available in the "Lectures & stuff" section on connex.)

Part (a): Problems from the Textbook

Complete the Chapter 1 Self-Check Problems 1 to 20 and compare your answer to those given by the textbook authors at:

<http://www.buildingjavaprograms.com/self-check-solutions-4ed.html>

Part (b): ASCII Art

With the US Presidential election, we can set aside our Canadian misgivings about the whole Clinton vs. Trump thing by instead using Java to draw the national bird of the United States of America. To that end you will write a Java program to create an ASCII-art version of an eagle.

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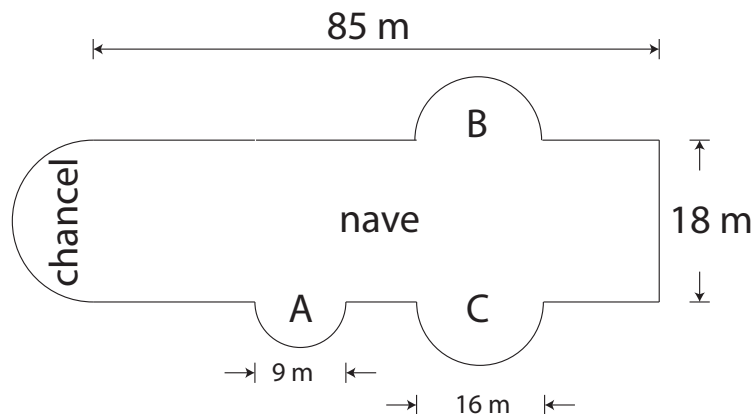
```

This might bird looks best when your terminal uses a monospaced font such as Courier. It is composed of the following characters: space, comma, asterisk, forward slash, backslash, backtick (`), underscore (_), asterisk (*), parentheses, single quote ('), and the hyphen (-).

File to submit: AsciiEagle.java

Part (c): Math calculations

Write a program to calculate the surface area of the cathedral floor shown below.



Write your program in several steps:

- Write a statement to calculate the rectangular area of the nave not including the chancel or the four chapels, and store this to a variable called *naveArea*.
- Write a statement to calculate the area of a semicircle corresponding to the chancel. (Note that its diameter is given and that the chancel is a perfect semicircle.) Store this into a variable named *chancelArea*.
- Write a statement to calculate the area of a semicircle corresponding to one of the smaller chapels. Note that chapels B and C are the same size. Store chapel areas into variables named *chapelAreaSmall* (for chapels A) and *chapelAreaLarge* (for chapels B and C).
- Write the lines of code using the three variables created above to calculate the complete area of the cathedral floor and print it out to the console.

Note that you should choose the proper primitive type for your variables in order to get a precise answer. You may use `Math.PI` in your calculations.

File to submit: FloorArea.java

Grading scheme

- “A” grade: An exceptional submission demonstrating creativity and initiative going above and beyond the assignment requirements. The two programs run without any problems and have the expected output. Any extra work appears in the files named *AsciiEagleExtra.java* and *FloorAreaExtra.java* and identified within the files (i.e., Class comment) is how you have extended the assignment to demonstrate creativity and initiative.
- “B” grade: A submission completing the requirements of the assignment. The two programs run without any problems and have the expected output.
- “C” grade: A submission completing most of the requirements of the assignment. The programs run with some problems OR only one program runs without any problems and has the expected output.
- “D” grade: A serious attempt at completing requirements for the assignment. The two programs run with quite a few problems OR only one program runs with some problems.
- “F” grade: Either no submission given, the submission does not compile, or submission represents very little work.