CSC 260.002 Programming assignment 3 Due: Tuesday, September 13

Write a program that will estimate the cost to build a home based on four different attributes of the house: the acreage of the plot of land, the size of the house in square feet, the shape of the house, and the number of stories of the house (including finished or unfinished basement).

First, find out how many acres of land the user wants (a double) and the location of the house (a String). Round acreage up to the nearest quarter acre (0.25) using Math.ceil(acreage \* 100 / 25) \* 0.25. If the user enters .3, this will round up to .5. Cost per acre is dependent on the location using the following table. In some towns, larger plots have a different cost per acre (in the case of Mariemont, larger plots actually cost more, not less). If the city name does not match any towns in the list, output an error message otherwise continue to compute the cost.

Location	Cost /	Unless	Then Cost / Acre
	Acre		
Cold Spring, Highland Heights	\$46,415		
Anderson Township	\$97,500	> 2 acres	\$70,000
Covington, Newport	\$72,250	> .75 acre	\$66,660
Florence	\$57,721	> 1.5 acre	\$50,999
Independence	\$45,500		
Indian Hill	\$160,000		
Mariemont	\$84,120	> 1 acre	\$95,000
Richwood	\$85,000		

The size of the house is dependent on the number of people who will live there. Input the number of people (an int) and assume the following number of bedrooms based on this input.

If 3 or fewer people, 3 bedrooms

If 4-5 people, 4 bedrooms

If 6-7 people, 5 bedrooms

If more, 6 bedrooms

If the user enters 0 or a negative number for people, output an error message, otherwise continue.

All houses will have a single master bedroom plus bedrooms to fill out the number from above (e.g., a 5 bedroom house will have 1 master bedroom and 4 other bedrooms). The master bedroom will be 300 square feet and all other bedrooms will be 160 square feet. The master bedroom will have a master bathroom with a size of 100 square feet. In addition to the master bathroom, there will be 1 full bathroom and 1 half bathroom for houses with 3 or 4 bedrooms, 2 full bathrooms and 1 half bathroom for houses with 5 bedrooms and 3 full bathrooms and a half bathroom for houses with 6 bedrooms. A full bathroom will be 50 square feet and a half bathroom will be 30 square feet. Given the square footage for the bedrooms and bathroom, double this size to obtain the total size for the house (the remaining square footage will account for the rest of the rooms in the house). The cost of the house is determined by the following formula.

For square footage < 2400: cost = \$82.29 \* square footage For square footage between 2400 and 3600: cost = \$78.66 \* square footage Otherwise cost = \$70.84 \* square footage The cost computed above is then adjusted based on both the number of stories of the house and the shape of the house. Ask the user whether the house is 1 story, 2 stories, 1 story plus basement, or 2 stories plus basement. If the house is to have a basement, ask if the basement is finished or not (do not ask this if the house will not have a basement). The cost computed above is for a 1 story house with no basement. If it is any other style house, use the following adjustments.

2-story no basement: increase cost by 20% (multiply by 1.2)

2-story unfinished basement: increase cost by 30%

2-story finished basement: increase cost by 45%

1-story unfinished basement: increase cost by 10%

1-story finished basement: increase cost by 15%

Input from the user the shape of house which will be rectangular or other. If other, increase the house cost by 13%. If rectangular, input the number of corners which should be one of 4, 6, 8, or 10. If 4 corners, reduce the cost of the house by 10%. If 8 corners, increase the cost of the house by 4% and if 10 corners, increase the cost of the house by 5%.

After performing all of the computations, output a report which includes

- User's name
- The date (see program 2 for how to output the date)
- The city where the house is to be built
- The square footage of the house
- The number of stories and if there is a basement, whether it is finished or not
- Estimated cost of the house this should be rounded off with 2 decimal points of accuracy (see Prog4\_1.java on the sample code website for how to do this)

NOTE: output only the first two lines above along with an error message if either the city is not one of the cities listed on the first page of this assignment or the user entered an illegal number of people. You may also output an error if the user does not input the correct number of floors/basement or corners, but that is not required.

Run your program on the following inputs. Four of the inputs show the expected cost (or error) so that you can compare your results. Collect the outputs for runs 3-8, paste them into your program source code in comments at the bottom and hand in your source code.

Run	Acreage	Location	# of	Stories/basement/finished	Shape	Estimated
			people			cost
1	.45	Highland_Heights	5	2, no, no	rect, 8	\$226142.97
					corners	\$220387.51
2	1.1	Anderson_Township	2	1, yes, yes	other	\$329473.93
						\$292972.37
3	.625	Florence	0	2, yes, no	rect,. 6	error
4	.3	Covington	4	1, no, no	rect, 4	
5	5.4	Indian Hill	8	2, yes, yes	rect, 10	
6	.75	Delhi	5	2, no, no	rect, 6	error
7	.45	Independence	5	1, yes, no	rect, 6	
8	.8	Richwood	3	2, yes, yes	other	