

Homework assignment 02

Complete the following 3 programs for this week's homework.

Programming assignments

Random Pattern (20 points)

- *10 Print* (<http://10print.org/>) is a book written in 2012 about an old-school, one-line program written for the commodore 64 that would print a beautiful, random pattern using only 2 characters.
- Taking inspiration from this, write a program that asks the user for 2 characters, then generates a random pattern that is 100 characters wide by 100 characters tall.

Example output:

[illegible]

NOTE: The formatting in this pdf wraps the text, there should just be 100X100 characters, not different amounts every other line.

- Try to find creative characters to use. As a tip, you can paste in characters to the console if you find them somewhere.

reusable random number generator (35 points)

- In previous lessons, we figured out how to generate a random integer within a range of 2 numbers. Write a method that takes in a minimum integer and a maximum integer and returns a random integer between the 2.
- Then, in the main method, generate random integers between 0 and 100 (using the method you wrote) until you generate the number '50'. Print out each random number. When you generate the number '50', print out how many times it took to do that.

example output:

```
2
94
47
27
33
87
70
50
It took 8 tries to get a 50
```

- Tips:
 - Think carefully about what loop you use
 - Be careful of off-by-one errors

A man, a plan, a canal, Panama! (45 points)

- Write a program that contains the following 3 methods:
 - The main method
 - A method that takes in a string and returns the reverse of that string
 - A method that checks whether or not a string is a palindrome (using the reverse method above)
- The main method should ask the user for a string, and then return whether or not it is a palindrome.

example output:

```
Enter a string to check if it's a palindrome: kayak
kayak is, in fact a palindrome.
```

Grading

Does the program compile? If it doesn't, you will get 0 points for that problem.

**** Is the program properly documented?**** (*worth ~20% of the problem*)

Proper documentation includes:

- preamble with the name of the author, date of creation and brief description of the program.
- comments inside the code describing what the code does, especially for sections that may be unclear.
- appropriate formatting, indentation and use of white space to make the code readable.
- variables names are properly chosen and descriptive.

Remember that the code is read by humans and it should be easy to read for people who were not involved in its development.

Is the program well written? (*worth ~30% of the problem*) Programs should be written as clearly and simply as possible to perform the necessary tasks. Variables should be well named and use the appropriate types. User prompts should have easy-to-follow instructions.

Is the program correct? (*worth ~50% of the problem*), Make sure that your program produces results as specified above.

How to submit

Homework should be submitted through NYU Classes. It should be submitted by 11:55pm on the day listed on the course website or it will be marked as late.

To submit homework, upload a single zip file of the 3 java class files to the NYU Classes site.