Lab 5

Learn about the different types of loops and how they work in different situations.

In this lab, you will practice with the three different types of loops: for loops, while loops, and do while loops. You will also learn keywords such as pretest *and* posttest, *and how to pick the best loop(s) for different circumstances.*

Pre Lab

- Make sure that you have read Chapter 5 carefully
- While reading, do the Self-Check Questions
  - Focus on the following sections:
    5.2 5.3 5.4 5.5 5.6 5.7 5.8 5.9
    - **Make sure to understand the looping process in Section 5.5 before coming to lab**. Also look at Case Study 5.11 (Section 5.11), which shows how to use a for loop to find Prime Numbers.
- While reading, make sure to watch all of the videos, especially the following ones:
  - Guess a Number (Video in 5.2) – Try coding along with the video!
  - Minimize Numeric Errors (Video in 5.7)
- Inside the Revel Textbook, finish the assigned Exercise Sets:
  - 5.2 5.3 5.4 5.6 5.9
- **Make sure to review the "Key Terms" and "Chapter Summary" frequently and especially before every Lab Session**

In-Lab Activities

You will receive this section during lab. ☺

There will be **Guided Inquiry** questions in chat bubbles located next to various Lab Activities. You must answer these questions in your **notebook** for those particular Activities.

Post Lab (Individual work and submission)

Revel Work

Do the following activities from within the Revel Textbook:

- Chapter 5 Programming Project 3
- Chapter 5 Programming Project 5

Programming Project: Prime Numbers

You will write a program that will determine whether a number is a prime number. Allow the user to enter a number, and **display a message depending on whether or not it is prime**. The user should be allowed to

keep entering numbers until they enter "-1" to quit.

Look at Chapter 5, Section 5.11 for some examples working with Prime Numbers.

As a second part to this program, allow the user to enter a max number. Then, **display each number from 1 to the user-inputted range, as well as whether or not each number is prime**.

For example, let's say the user enters 10 as the max range. The program would show:
1 is prime.
2 is prime.
3 is prime.
4 is not prime.
5 is prime.
6 is not prime.
7 is prime.
8 is not prime.
9 is not prime.
10 is not prime.

Submit this to the Post Lab Program Submission area. Upload just the JAVA class file.

Important Concepts

Answer the following questions on Canvas. There will be a text submission area for Post Lab 5 – answer these questions there.

1. Describe the different parts of a for loop.
2. What is the difference between a **pretest** and **posttest** loop? When is it best to use each type?
3. What is the difference between a **break statement** and **continue statement**?