CYBER CHALLENGES

Setup

Directions:

This is the "Cyber Challenges", a collection of 4 challenge sets each with several challenges to test your knowledge of Java, (run)time complexity and data structures. You will receive these challenges throughout the quarter. It's time to see how much you have learned!

Before we can officially begin, here is everything you need to get ready for The Cyber Challenges. EVERY member of your team must do this so that all laptops are ready to go for challenge day.

Java Setup:

- If your version of Java is less than JDK 16, go to https://www.oracle.com/java/technologies/javase-downloads.html to download the latest JDK. Version 16, 17, 18 or newer should be fine.
- Make sure to check the box that says something like “Add Java to your PATH” (exact wording may differ slightly).
- If you have Windows, you will also need to download Git Bash, which can be downloaded here: https://git-scm.com/downloads
- After both programs download and are installed (you may have to reboot afterwards), open Git Bash or the built-in terminal if using Linux or Mac. To do so, follow these directions:
    - On Windows 10:
        - Go to the folder that contains the Setup.java file and this README file
        - Make sure nothing is selected (i.e. click in the blank area next to the files)
        - Right click in that blank area
        - Click on ‘Git Bash Here’
    - On Windows 11:
        - Go to the folder that contains the Setup.java file and this README file
        - Make sure nothing is selected (i.e. click in the blank area next to the files)
        - Right click in that blank area
        - Click on ‘Show more options’
        - Click on ‘Git Bash Here’
    - On Mac or Linux:
        - Open up a terminal window
        - In Finder: Navigate to where you have your Setup.java file and this README file
        - Copy the path to that directory (you can do this by right clicking (or ctrl clicking) on the Setup.java file and clicking on ‘Get Info’ then copying the filepath from there).
        - Go back to the terminal window
        - Type ‘cd’ followed by a space then paste the file path (by pressing shift+insert or right clicking (or ctrl clicking))
        - Hit enter/return after typing everything in
- Now type "**javac --version**" (without the quotes) into the terminal and press enter
    - You should see the version of Java you just downloaded pop up

- Now type "**java --version**" (without the quotes) into the terminal and press enter
    - Note that this time there is no “c” after the word “java”
    - You should see the same version of Java as you did with running it with javac above
- If these versions do not match or if these versions aren’t version 16 or higher, please raise your hand and I will walk you through the steps to fix this
- To be clear, on Windows I want you using Git Bash. Using powershell or Windows command prompt won’t work.
- **You will use this terminal (i.e. Mac/Linux terminal or Windows Git Bash) for both compiling and running the Java challenges**
    - You can use whichever IDE or text editor you want to type your code (for example VS Code or Eclipse), but you MUST use the terminal for compiling (i.e. using “javac”), running (i.e. using “java”) and checking your answers (i.e. looking at the output in the terminal). You may open multiple terminals if need be.
- Now type "**javac Setup.java**" into the terminal and press enter
- Make sure there are no compilation errors.
    - If you get the error "Setup.java:19: error: illegal start of expression", this means your version of Java is too old. Update to version 16 or newer.
    - You should also not get an error or warning about any "preview" features being used.
- A file called Setup.class will be created if the above command is successful
- Type "**java Setup**" and press enter to run it. Make sure the output shows colorful text and not any seemingly random characters. The output should look something like this:

    Java Setup Finished
- If you see the colorful text, you are good to go for the Java challenge!

Team Setup:

- You will need to form teams of 2 or 3 students.
- There is a signup sheet on Canvas.
- After you have formed your team and wrote your name on the signup sheet, do the following:
    - Setup a Discord channel for you and your team. You will need to share files and communicate during the challenge and Discord will serve both of these purposes.
    - This Discord should not be shared with any other team, but do make sure all members of your team join the Discord before the day of the challenge.
- To start the challenges, first you need to register your team. ONLY ONE TEAM MEMBER SHOULD DO THIS. In the terminal (opened in the directory that this document is in), type the following:

    ```
    java RegisterTeam TEAMNAME
    ```

    With "TEAMNAME" replaced with your team's name.
- This will create a file called "team.data".
- Share this file on your Discord with your entire team. Every person MUST have this file on their computer in the same directory as this pdf if they are going to use that computer to complete a challenge.

First Challenge:

Your first challenge set will test your knowledge of Java and will be given very soon. When a challenge set is downloaded, read its README file to find out about that set. It is strongly advised to use your team wisely and spread out to conquer the challenges simultaneously, as they are unlocked (if applicable).

You should have already completed setting everything up, but here are a few reminders about these challenges:

- All code should be compiled and/or executed on either Git Bash or Linux's or Mac's terminal. If you ignore this and use an IDE to run your code, the challenges will NOT work correctly, and you will be wasting your team's time.
- You may look up anything online, however I recommend checking your lecture notes first.
- You may **NOT** use **ANY** form of generative AI (including ChatGPT) to help you in ANY way. If any member of your team is found using this, the entire team will receive a zero for the whole challenge. This includes editors and IDE with built-in or plugin functionality.
- Follow all directions completely. This means reading (and sometimes re-reading) everything. Failure to follow directions will result in a failed challenge. These challenges are automatically checked by software on a server, so any deviation from the directions will fail the check.
- Make sure you have a working internet connection as it is required for all challenges.
- Make sure you have Java 16 or higher.
- You should have a Discord setup for your team to communicate and share files and code. This obviously should not be shared with any other team.

To check your score along with every other team's score, go to: https://www.cyberchallenges.tech