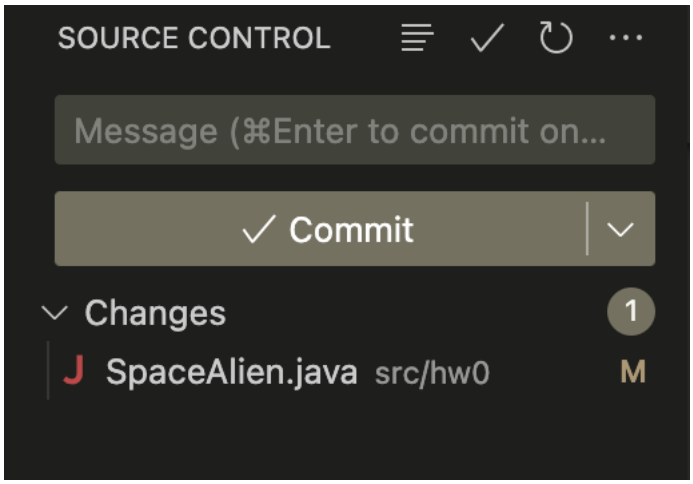
COMP232 Data Structures and Problem Solving	**Fall 2024**
Instructor: William Goble	**Homework 0**

All of the sample code and homework assignments for this section of COMP232 will be managed via git and GitHub. As a reminder, GitHub provides a cloud based version control system for software development. GitHub and git are used extensively in professional and open source software development. For our purposes in this class, you will use git and GitHub to retrieve sample code, assignment boilerplate, and submit and receive feedback on your work. In addition, by storing your code on GitHub you will always have a backup!

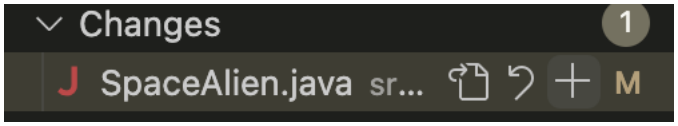
The Assignment

1. Open a web browser and go to https://github.com
    a. If you do not already, sign up for a GitHub account.
    b. After creating an account, GitHub will send you an email to verify it is real. Once you've done that, your GitHub account will be active.
    c. Navigate to the class Teams Channel and post the following information:
        i. A brief introduction about yourself, this could be a fun fact or something you are looking forward to this year.
        ii. Your GitHub username
2. On Moodle, under the How To section, you will see a link titled "Invitation Link for Sample Code". Follow this link and if not already, log into your GitHub account.
    a. Here you should see a message to accept an assignment. Once you accept the assignment, GitHub will provide you with a link that you can use to access the code repository for the example code to be used in the class.
    b. Click the green **Clone or download** button, and copy the web URL
    c. Open VSCode
        i. Click the source code menu on the side bar

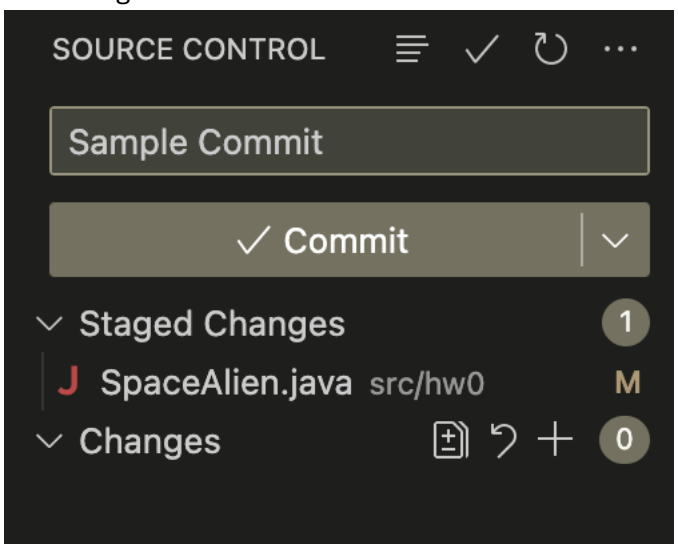
        ii. Paste in the URL into the text bar that appears at the top of the screen
        iii. Select where you want to clone
        iv. You will be prompted to open the repo once it is cloned, select yes
        v. If you are asked if you trust the author of the repo, you can say yes in this case since it is something I am giving you
        vi. You should now have your project open within VSCode and you can start editing it
        vii. Whenever you want to make a commit, you can return to the source control panel and select which file you would like to commit.



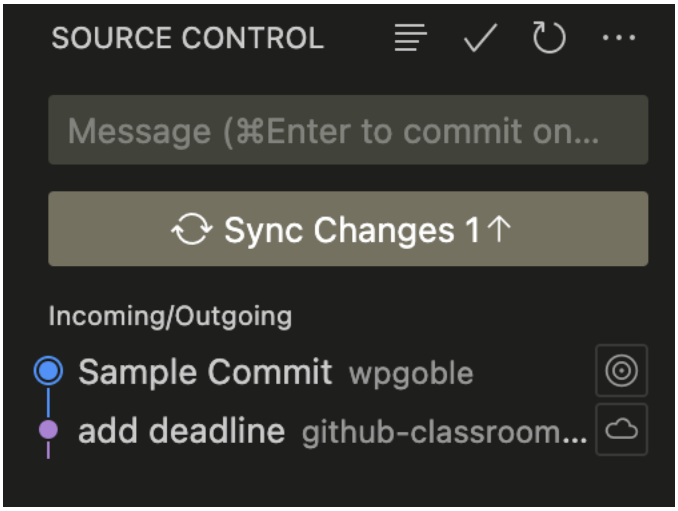
The M signifies that a file has been modified, and if you hover your mouse over the file you will see an option to stage the changed files



Once the files have been staged, we can write our commit message and push our changes.



viii. When we are ready to push our changes, we can select Sync changes, and this will perform a git push and pull for us.



Question 1. (10 points) Create a new class that extends the SpaceAlien class and implements the ZapsWithSlime interface. Feel free to be creative, but a suggested minimum would be to add at least one field and also override the doGreeting() method in addition to implementing the ZapsWithSlime interface.

Question 2. (10 points) Write a few sentences in your own words describing the differences between the following three software concepts:

1. Overriding a method
2. Overloading a method
3. Implementing a method

It's fine to use sources for this question, but if you consult a source *you should cite it and also make sure to write your answer in your own words*.

N.B: When a question requires a written answer (as in Question 2 above), insert your answer into the homework assignment document. Meaning you should start typing your answer immediately after this paragraph. When you have finished the assignment, export the document as a PDF and save it in your GitHub repository, in the top-level folder called noncode-answers.

1. Overriding a method is when a subclass provides a method implementation declared by one of the parent classes from which the subclass inherits.
2. Overloading a method is when a class has many methods with the same name but different signatures (parameters).
3. Implementing a method is a process of defining the behavior of the method declared in an interface or abstract class. Methods in interfaces don't have bodies, a class provides concrete bodies for those methods when implementing an interface. A class must provide implementations for all abstract methods when extending an abstract class.