Module 1 has been quite a journey! From learning about software development fundamentals to manipulating Strings and using arrays, you have covered quite a distance and are well set to grow as a Java programmer. Now, it’s time to apply your coding skills in a real-world scenario where you will practice declaring variables, initializing them with predefined values, and manipulating Strings to create a formatted output.

Amy is developing a simple movie ticket booking application and needs your help. The program must store the user's name, the movie title, the number of tickets, and the price per ticket. The program will then calculate the total cost, apply some string manipulations, and display a detailed booking confirmation message.

Goal

Can you help Amy develop her program by declaring and initializing variables, calculating ticket prices, applying string manipulations, and formatting user-facing output?

You'll need to write some robust code to help Amy develop her application. Are you up for it?

Let's get started.

🖥️ Note: When you encounter this icon, it’s time to get into your IDE and start coding!

In your lab environment, open IntelliJ by double-clicking on the icon.

You will be brought to the starter code when the IntelliJ IDE opens.
Before you begin, explore the starter code to ensure you're ready to code! Then, you'll begin helping Amy by declaring and initializing variables. You need to declare and initialize the variables for the following:

- First name
- Last name
- Movie title
- Number of tickets
- Price per ticket

Then, you need to calculate the total ticket price using the assigned number of tickets and the cost per ticket.

Step 1: Explore the starter code

🖥️ It's time to get coding!

The **`main`** method of the **`main`** class is placed in a file named **`Main.java`**. As soon as you open IntelliJ, you will be presented with the following starter code:

```
public class Main {

public static void main(String[] args) {

   }

}
```

Remember that the term 'TODO' indicates the position within the program where you have to type in your own code.

Step 2: Declare and initialize variables

🖥️ It's time to get coding!

TODO 1: Inside the main method, declare and initialize the outlined variables.

Instructions:

- Remove the first TODO 1 block and declare a variable for the First Name. Then, initialize it with the name "Sandy".
- Remove the second TODO 1 block and declare a variable for the Last Name. Then, initialize it with the name "Jones".
- Remove the third TODO 1 block and declare a variable for the Movie Title. Then, initialize it with the movie "The Source Code".
- Remove the fourth TODO 1 block and declare a variable for the Number of tickets. Initialize it with the value 8 for eight tickets purchased.
- Remove the fifth TODO 1 block and declare a variable for Price per ticket. Initialize it with a value of 10.57 - the price of one ticket.
- Run your code using the IDE.
- Use **`System.out.println()`** to check if the variables have been initialized correctly against the expected output.

Note: Remove the **`System.out.println()`** *statements before submitting your output.*

```
//TODO 1: declare and initialize variable for First Name

//TODO 1: declare and initialize variable for Last Name

//TODO 1: declare and initialize variable for Movie Title
```

```
//TODO 1: declare and initialize variable for Number of tickets

//TODO 1: declare and initialize variable for Price per ticket
```

Expected output:

```
First Name: Sandy

Last Name: Jones

Movie: The Source Code

Number of Tickets: 8

Price per ticket in USD: 10.57
```

Remember

Revisit the *Introduction to variables and data types* video if you feel stuck.

Step 3: Calculate the total ticket price

🖥️ It's time to get coding!

TODO 2: Once you've printed all the details of the initialized variables, you need to calculate the ticket's total price using the number of tickets and the price per ticket variables you created. Be sure to assign a variable to the calculated total price so that you can use it in later calculations.

Instructions:

- Remove the TODO 2 block and write a statement to calculate the total price based on the number of tickets and price per ticket.
- Run your code using the IDE.
- Use **`System.out.println()`** to check the calculated total price of tickets against the expected output.

Note: Remove the **`System.out.println()`** *statements before submitting your output.*

```
//TODO 2: Calculate the total price based on number of tickets and price per
ticket. Print the output of the total price
```

Expected output:

```
Total Price of 8 tickets: 84.56
```

Remember

If you're unsure, revisit the *Explore the different types of operators in Java* video.

Good going! Amy is very impressed that you've coded her program to declare and initialize relevant variables and calculate the total cost of tickets. Next, she needs your help in formatting the strings for the final output.

Step 1: Concatenate the first name and last name to get the username

🖥️ It's time to get coding!

TODO 3: So far, you've calculated the total price of eight tickets. However, every system needs a user name. Here we create a username by concatenating the first name and the last name and converting it all to lower case. Your job is to concatenate the first name and the last name and convert it to lower case and assign it to a new variable named "**`userName`**".

Instruction:

1. Remove the TODO 3 block and write a statement to concatenate the first and last name and also convert it to lower case.
2. Run your code using the IDE.

Note: Remove tor comment out any un-needed **`System.out.println()`** *statements before submitting your output.*

```
//TODO 3: Concatenate first name and last name into new variable username with

// no space in between first and last name and convert them to lower case
```

Expected output:

```
Username: sandyjones
```

Remember

Feeling unsure? Take another look at the:

- *Explore the different types of operators in Java* video.
- *Using variable and operators* reading on handling decimal places.

Step 2: Convert the movie title to upper case to highlight it in the ticket

🖥️ It's time to get coding!

TODO 4: Well done, you have successfully created the username. Now, you need to highlight the movie name in the final ticket, so you will have to convert the movieTitle to uppercase.

Instructions:

1. Remove the TODO 4 block and write a statement to convert the movieTitle to uppercase and assign it to a new variable movieName.
2. Run your code using the IDE.
3. Use **`System.out.println()`** to check the calculated discount price against the expected output.

Note: Remove the **`System.out.println()`** *statements before submitting your output.*

```
// TODO 4: Convert the movie title to upper case and assign to variable movieName
```

Expected output:

```
Movie: THE SOURCE CODE
```

Remember

The *Explore the different types of operators*video will help you out here if you're feeling stuck.

Important

Do not forget to delete all the previous **`System.out.println()`** statements you used to validate your entries and calculations before submitting the lab. Your final output should look like the Final expected output block in the next step.

Step 3: Print the final expected output

🖥️ It's time to get coding!

TODO 5: Now that you have calculated the final price, you must print out the final output for validation.

Instructions:

1. Remove the TODO 5 block and write print statements to match the Final expected output.
2. Run your code using the IDE.
3. Make sure you have removed any **`System.out.println()`** statements you have used to check your outputs previously.
4. This time, only use the **`System.out.println()`** statements to produce the Final expected output.

```
// TODO 5: write multiple print statements to match your output as per

// the Final Expected Output
```

Final expected output:

Tip

You can use **`System.out.println("\n");`** to add a blank line in your final output or if you need extra blank line, you can use **`System.out.println("Your text here\n");`**

Note: Grading of this assignment is based on the expected output above, so try to ensure your code output is identical to the expected output above!

After you have tested and confirmed your project functionality, if you are happy with your results you can now submit your assignment for grading and feedback!

To submit your assignment, make sure to save all of your files in the IntelliJ IDE using File -> Save All, then look for and click the blue "Submit Assignment" button in the top right corner of your lab environment. This sends your code off to the grader for evaluation.

When you submit your assignment, the grader is designed to check how well your code performs its intended functions based on the instructions for this assignment. Think of it as a thorough code review!

You can submit as many times as you'd like! Use the grader as a partner to help improve your code with every submission.

Here's the crucial part: the grader needs to compile and run your application in order to work. If it can't get past this stage, your grade will unfortunately be a 0. If you submit your work and the grade is a 0, there is a good chance that your hard work

couldn’t compile - not necessarily that your logic or functionality is wrong. So double-check that everything compiles and runs correctly in the IDE before submitting.

To gain full grades for this specific assignment, your code output should look like the following:

```
Congratulations!! You have successfully booked the tickets



Username: sandyjones

Movie: THE SOURCE CODE

Number of Tickets: 8

Price per ticket: $10.57

Total price of 8 tickets: $84.56



Thank you for choosing us for booking your movie tickets

Enjoy your movie!!!
```

Congratulations on successfully completing this lab exercise! You’ve come a long way since the start of Module 1—you’re now successfully writing your own programs.

By helping Amy with her movie ticket booking application, you’ve applied these foundational skills in a practical scenario. Your ability to declare and initialize variables, perform arithmetic operations, and manipulate Strings to create formatted output is impressive - it certainly impressed Amy!

Keep practicing and building on this solid foundation as you continue your journey to becoming a proficient Java programmer. Well done, and keep up the great work!