

Lab 4

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1. **Implement/Discuss:** After completing Welcome → Create a Hello World application add a couple of more outputs. Try to do the same thing in Python.

Java

Input:

```
public class HelloWorld {
    public static void main(String[] args) {
        // 1. Print hello word + other outputs
        System.out.println("Hello world!");
        System.out.println("Hello solar system!");
        System.out.println("Hello galaxy!");
        System.out.println("Hello universe!");
    }
}
```

Output:

COMPILATION ISSUES DISCUSSED!

```
/Library/Java/JavaVirtualMachines/jdk-15.0.2.jdk/Contents/Home/bin/java -javaagent:/Users/solbenishay/Desktop/IntelliJ IDEA CE.app/Contents/Lib/idea_rt.jar=53308:/Users/
Error: Could not find or load main class HelloWorld
Caused by: java.lang.ClassNotFoundException: HelloWorld

Process finished with exit code 1
```

Python

Input:

```
## 1. Print hello word + other outputs
print("Hello world!")
print("Hello solar system!")
print("Hello galaxy!")
print("Hello universe!")
```

Output:

```
/usr/local/bin/python3.9 "/Users/solbenishay/Desktop/School/2020:21/Spring/CS-120 Programming on Purpose/Lab 4/Lab4.py"  
Hello world!  
Hello solar system!  
Hello galaxy!  
Hello universe!  
  
Process finished with exit code 0
```

- a. Is there any similarity between the Java and the Python implementations?
Other than having to enclose the output in quotes to mark a string and sort of similar "System.out.println()" and "print" call, there is not much similarity between the Java and Python implementations
 - b. What are the differences between the Java and the Python implementations?
In the Java implementation, one must first create a class, as well as create the main method (whenever a standalone class or start of a program) to implement. This is because of Java's Object-Oriented design. Additionally the print calls require accessing the System class before calling println on out.
The Python implementation is much simpler with all you needing to do is call print() with each of the desired outputs.
2. Implement/Try/Discuss: Zybook
- a. Implement the code in Zybook 1.10 Java example: Salary calculation in Eclipse. Try to do the same thing in Python.

Java

Input:

```
public class Salary {  
    public static void main(String[] args) {  
        int hourlyWage;  
  
        hourlyWage = 20;  
  
        System.out.print("Annual salary is: ");  
        System.out.println(hourlyWage * 40 * 50);  
    }  
}
```

```
        System.out.print("Monthly salary is: ");
        System.out.println((hourlyWage * 40 * 50) / 12);
    }
}
```

Output:

COMPILATION ISSUES DISCUSSED!

```
/Library/Java/JavaVirtualMachines/jdk-15.0.2.jdk/Contents/Home/bin/java -javaagent:/Users/solbenishay/Desktop/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar
Error: Could not find or load main class Salary
Caused by: java.lang.ClassNotFoundException: Salary

Process finished with exit code 1
```

Python

Input:

```
# 1.10 Salary calculator
hourly_wage = 20
print("Salary calculator")
print(f"Annual salary is: {hourly_wage * 40 * 50}")
print(f"Monthly salary is: {round((hourly_wage * 40 * 50) / 12, 2)}")
```

Output:

```
/usr/local/bin/python3.9 "/Users/solbenishay/Desktop/School/2020:21/Spring/CS-120 Programming on Purpose/Lab 4/Lab4.py"
Salary calculator
Annual salary is: 40000
Monthly salary is: 3333.33

Process finished with exit code 0
```

- b. Implement the code in Zybook 1.11 Java example: Married-couple names. Try to do the same thing in Python.

Java

Input:

```
import java.util.Scanner;

public class ShowMarriedNames {
    public static void main(String[] args) {
        Scanner scnr = new Scanner(System.in);
        String firstName1;
        String lastName1;
        String firstName2;
        String lastName2;

        System.out.println("What is the first person's first
name?");
        firstName1 = scnr.nextLine();
        System.out.println("What is the first person's last
name?");
        lastName1 = scnr.nextLine();

        System.out.println("What is the second person's first
name?");
        firstName2 = scnr.nextLine();
        System.out.println("What is the second person's last
name?");
        lastName2 = scnr.nextLine();

        System.out.println("Here are some common married-couple
names:");
        System.out.println(firstName1 + " " + lastName1 + " and
" +
            firstName2 + " " + lastName2);
        System.out.println(firstName1 + " and " + firstName2 + "
" + lastName1 + "-" + lastName2);
        System.out.println(firstName1 + " and " + firstName2 + "
"
```

```
" + lastName2 + "-" + lastName1);  
    }  
}
```

Output:

COMPILATION ERRORS DISCUSSED!

```
/Library/Java/JavaVirtualMachines/jdk-15.0.2.jdk/Contents/Home/bin/java -javaagent:/Users/solbenishay/Desktop/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar  
Error: Could not find or load main class ShowMarriedNames  
Caused by: java.lang.ClassNotFoundException: ShowMarriedNames  
  
Process finished with exit code 1
```

Python

Input:

```
# 1.11 Married-couple names  
firstName1 = input("What is the first person's first name? ")  
lastName1 = input("What is the first person's last name? ")  
firstName2 = input("What is the second person's first name? ")  
lastName2 = input("What is the second person's last name? ")  
  
print("Here are some common married-couple names:")  
print(f"{firstName1} {lastName1} and {firstName2} {lastName2}")  
print(f"{firstName1} and {firstName2} {lastName1}")  
print(f"{firstName1} and {firstName2} {lastName2}")
```

Output:

```
/usr/local/bin/python3.9 "/Users/solbenishay/Desktop/School/2020:21/Spring/CS-120 Programming on Purpose/Lab 4/Lab4.py"  
What is the first person's first name? Sam  
What is the first person's last name? Smith  
What is the second person's first name? Anna  
What is the second person's last name? Jones  
Here are some common married-couple names:  
Sam Smith and Anna Jones  
Sam and Anna Smith  
Sam and Anna Jones
```

c. Is there any similarity between the Java and the Python implementations? Other than having to enclose the output in quotes to mark a string and sort of similar "System.out.println()" and "print" call, there is not much similarity between the Java and Python implementations

d. What are the differences between the Java and the Python implementations?

In the Java implementation, one must first create a class, as well as create the main method (whenever a standalone class or start of a program) to implement. This is because of Java's Object-Oriented design. Additionally the print calls require accessing the System class before calling println on out. Inputs are not a built-in function/method in Java so you must firstly import java.util.Scanner. Additionally, the inputs/scanner objects are much harder to access in Java requiring two lines of code for every input plus an additional scanner start line.

The Python implementation is much simpler with all you needing to do is call print() with each of the desired outputs. There is no need to create classes for a simple program like this and the inputs are much easier to create/get.