Project 3
Input, Logic Conditionals, If Else, and More Math

Each step may now represent two or more lines!
Step 0: Create a new python project in your IDE (**I will help**)

Note that code is almost always case sensitive so upper and lower case matters.

Input

Step 1: Create a variable called *Name* and assign it to the keyword **None**

The keyword **None** is used to show that nothing is stored inside the variable -- for now.

You may however use the *Name* variable later on to store some value inside it.

What is a keyword?
It is one word of a list of reserved words that the programming language (Python) assigns beforehand to mean something important. Thus, we may **not** use it for naming variables or functions (we will get it to this eventually)

Step 2: Now we will *prompt* the **user** (the person running the program) to type their name. So, **print** out the following: "Please Type Out Your Name and Then Press Enter:"

Step 3: Now assign the *Name* variable to the input() **function**
By default, the **input() function** will give you a **string value** of whatever is typed.

What is a **function**?
A **function** is code that has already been written out *somewhere by someone* (not important when and whom).

The **function** either does something and gives you back something (**called returns**) or does something without giving something back.

Generally, the **function** will have a name that we can use to "**call**" upon it to execute that piece of code. For example, the **input() function**'s name would just be: **input function**. The **name** is before the **(____)** where **_____** can be nothing or something.

You have actually already been using **functions**. Such as the **print() function**.

Step 4: Print something that is welcoming the user such as "Welcome, Tom" except instead of "Tom" it's whatever is stored inside the *Name* variable

Step 5: Print the following to the user: "Today we will be doing some \"interesting\" calculations with just two numbers!"

\" is called an **escape sequence** (*Not important to know for now, it's just cool*)
Step 6: Prompt the user to enter the first number with the print() **function** like so: "*Name* please enter the first number:"

Step 7: Create a variable named *Num01* and assign it to the input() **function** then **change (type cast)** the **string value** to an **integer value** like so: **int(input())**

We are putting the value/data **returned** from the input() **function** into the **int() function** which will change the **string value** to an **integer value** as long as it is a string value that looks like an integer. Otherwise, it will give back an **ERROR**.

Step 8: Now prompt the user to enter the second number like we did in step 6.

Step 9: Create a variable named *Num02* and mimic what we did in step 7.

Logic Conditionals/If Else

Logic Conditionals are a way of evaluating whether something is **True** or **False**.

Let us say we have two variables called *Num01* and *Num02*
Num01 = 20
Num02 = 40

Let us check whether the following logical conditionals are **True** or **False**:
Num01 > *Num02* equals **False** because **20 (Num01) greater than (>) 40 (Num02)** is not true
Num01 < *Num02* equals **True** because **20 (Num01) less than (<) 40 (Num02)** is true.
Num01 != *Num02* equals **True** because **20 (Num01) is not equal to (!=) 40 (Num02)** is true.

Here's a couple more:
<= : Less than or equal to
>= : Greater than or equal to
== : Equal

Step 10: Create a variable named *result_less_than* and assign *Num01* > *Num02* to it

Step 11: Print out the following statement: "It is *result_less_than* that *Num01* is less than *Num02*"

Step 12: Create a variable named *result_greater than* and assign *Num01* < *Num02* to it

Step 13: Print out the following statement: "It is *result_greater_than* that *Num01* is less than *Num02*"

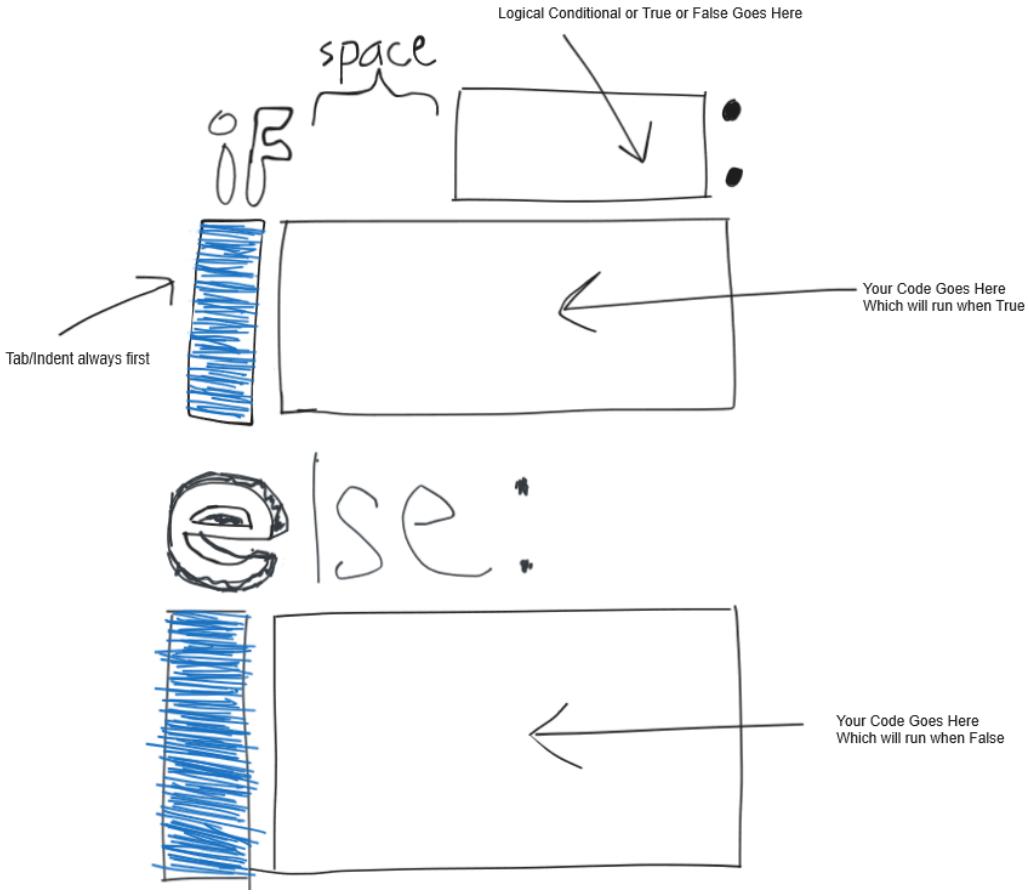
Step 14: Now, at this point try to do what we did for the two previous steps for the rest of the logic conditionals we have not done so far such as <=, >=, !=, ==. **Try running your program several times and inputting in different values! [IMPORTANT]**

If Else

If Else statements are a way to run a certain piece of code following whether a certain condition is **True** or **False**.

By the way, you do not need to always have the else part

The structure of the if else statement is as follows:



For example,
Num01 = 2
Num02 = *4*
if *Num01* < *Num02*:
    print("Num01 is less than Num02")
else:
   print("Num02 is less than OR equal to Num01")

Step 15: Now using an if else statement print whether Num01 is equal to Num02. So if it is equal then print something saying it is. Then using the else part of the if else statement, print something saying it is not equal

Step 16: Prompt the user to input a **string value**

Step 17: Store the user's input using the **input function** to a variable named *User_Input1*

Step 18: Again, prompt the user to input a **string value**

Step 19: Store the user's input using the **input function** to a variable named *User_Input2*

Step 20: Using an if else statement, check to see **if *User_Input1* is equal to** the string value "Hello" -- like so:

```
if User_Input1 == "Hello":
    print(User_Input1, "is equal to \"Hello\"")
else:
   print(User_Input, "is not equal to \"Hello\"")
```

Step 21: Using an if else statement, check to see if User_Input2 **is equal to** the string value "Doggies!" and then print something for both cases

WHEW THAT WAS A LOT!!!! WE LEARNED ABOUT A LITTLE BIT ABOUT FUNCTIONS, LOGIC CONDITIONALS, AND IF ELSE STATEMENTS!

YOU ARE DOING GREAT!!! BE PROUD!!! :>

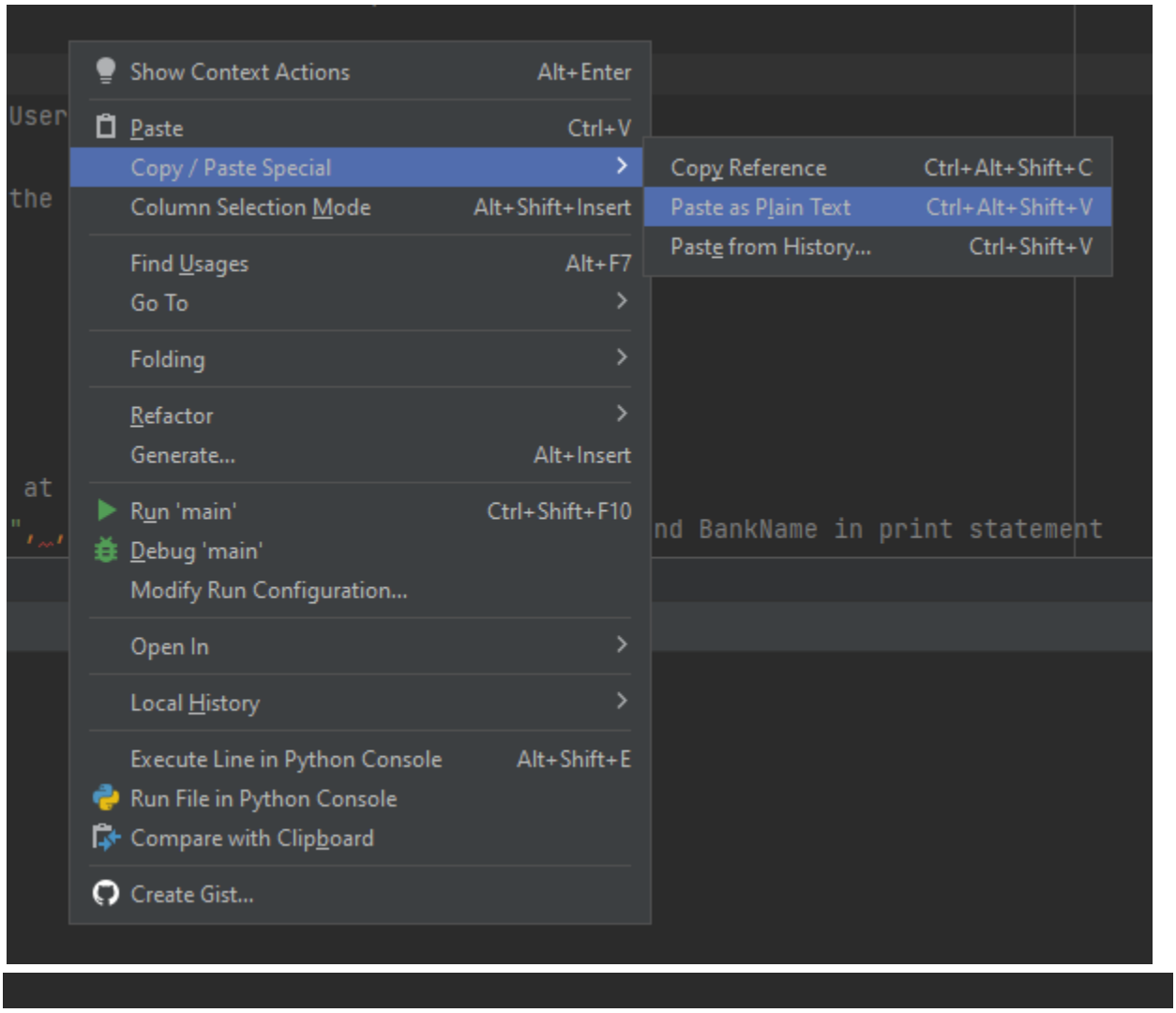
Practice

We are going to take what we just learned and build a more cool Bank System!

NOTE: This time I won't comment out everything into parts. **You** will be responsible for that!
To **comment multiple lines** of code use """ that sits above and below the chunk of code you want the computer to *ignore*
To **comment single lines** of code use # that sits in front of the part of the code you want the computer to *ignore*

Step 0: Create a new python file in your IDE (**I will help**)

Step 1: *Copy the following code below* and **paste it as plain text**
Like so: (Right click to bring up the menu)



```
import sys

print("SYSTEM: Please Enter a Bank Name...")
print("Admin:", end=' ')
BankName = input()
print("--------------------------------------------------------------------------
----")
print("BANK BOT: Hello! Welcome to", BankName + "!")
print("BANK BOT: I would love to start helping you today!")
print("BANK BOT: Please enter a valid Bank Account ID")

# You may change these variables if you want to
BankAcc_ID = 670912  # This is the valid Bank Account ID
BankAcc_Name = "Thomas"  # This is the owner's name for the Bank Account
BankAcc_Money = 10.00  # This is the money that the Bank Account currently has
stored

# We take the user's input and store it into the UserID variable
print("User:", end=' ')
UserID = int(input())  # Notice that it's inside the int() function because we
want it to return an integer

if   # We check whether UserID is valid

   # It is supposed to say:
   # I'm so happy to see you again <BankAcc_Name> at <BankName>!
   print("BANK BOT: I'm so happy to see you again", , "at", + "!")  # Include
BankAcc_Name and BankName in print statement

   # It is supposed to say:
   # What actions would you like to do on your Bank Account with ID
<BankAcc_ID>?
   print("BANK BOT: What actions would you like to do on your Bank Account with
ID", str(BankAcc_ID) +  "?")
   print("BANK BOT: You may deposit, withdraw, or exit the system.")
else:
   print("BANK BOT: Unfortunately, that is not a valid ID. Please try again by
running the program again.")
   sys.exit()  # This will EXIT your program

# Changes the input string to be ALL lowercase
# Check out the link for further demonstration on what it does!
# https://www.w3schools.com/python/ref_string_lower.asp
UserAction = input().lower()
if  # Check if UserAction is equal to the string value "deposit"
   print("BANK BOT: I see that you would like to deposit money into your
account.")
   print("BANK BOT: How much money would you like to deposit?")
```

```
   print(BankAcc_Name + ":", end=' ')
   Deposit_Amt =   # Take in user input as a float
   if :  # Check if we are depositing a positive amount of money
       print("BANK BOT: [ERROR] You may not deposit a negative amount of
money!")
       sys.exit()
   else:
       BankAcc_Money =   # Add what was deposited
       print("BANK BOT:", , "was successfully deposited into the account")  #
Include Deposit_Amt in print statement

elif UserAction == "withdraw": # Check if UserAction is equal to the string
value "withdraw"
   print("BANK BOT: I see that you would like to withdraw money into your
account.")
   print("BANK BOT: How much money would you like to withdraw?")

   print(BankAcc_Name + ":", end=' ')
   Withdraw_Amt =  # Take in user input as a float
   if   # Check if we are withdrawing less than or equal to the money in the
Bank Account
       print("BANK BOT: [ERROR] You may not withdraw more than you currently
have!")
       sys.exit()
   else:
       BankAcc_Money =  # Subtract what was withdrawn
       print("BANK BOT:", , "was successfully withdrawn from the account")  #
Include Withdraw_Amt in print statement

elif   # Check if UserAction is equal to the string value "exit"
   print("BANK BOT: Exiting the system...")
   sys.exit()

else:
   print("BANK BOT: You have not entered any of the following actions. Good
bye.")
   sys.exit()
```

THIS WAS REALLY TOUGH!!! YOU DID IT!!!! YOU'RE DOING GREAT!!! :)

Make Your Own Text Game!

You have all the tools to make your text based game.
If Else Statements, *Variables*, *Input*, and *Output*

Try making a game where you talk to NPCs and fight Enemies!
It doesn't have to be BIG. Keep it small and simple. Just enjoy what you're making and really feel cool making it!