Task 5 - Beginner Control Structures: The Boolean Data type and if, else, and elif Statements

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Question 1:

Compulsory Task 1

Follow these steps:

- Create a Python file called **baby.py** in this folder.
- This program will be used to test if the user is 18 or older and allowed entry into a party.
- Ask the user to enter the year they were born and calculate if they are 18 or older.
- If they are 18 or older, then display a message saying "Congrats, you are old enough."

Solution 1

```
In [62]: #int() function has been used for user input, this function only allow integers to pass
         #birth_year varibale will store integer value and it is basically user birth year
         birth_year = int(input("Please enter your birth year: "))

         #User_year varibale store difference of current year (2022) and user birth year
         #user_year store integer value, which will be a user age
         user_year = 2022 - birth_year

         #if statement is used to check, user is truly 18+ or not
         #if user_year value is greater than 18, than statement is True and it will print out "Congrates, you are old enough"
         if user_year>18:
             print("\nCongrates, you are old enough")

         #else statement is opposite of if statement. non qualifying value or False statement will be passed to this lane.
         #if user_year value is less than 18, than it will print out "Sorry, you aren't old enough"
         else:
             print("\nSorry, you aren't old enough")
```

Please enter your birth year: 1998

Congrates, you are old enough

Question 2:

Compulsory Task 2

Follow these steps:

- Create a Python file called **full_name.py** in this folder.
- This program will be used to validate that a user inputs at least two names when asked to enter their full name.
- Ask the user to input their full name.
- Do some validation to check that the user has entered a full name. Give an appropriate error message if they haven't. One of the following messages should be displayed based on the user's input:

  o "You haven't entered anything. Please enter your full name."
  o "You have entered less than 4 characters. Please make sure that you have entered your name and surname."
  o "You have entered more than 25 characters. Please make sure that you have only entered your full name."
  o "Thank you for entering your name."

  The error message examples should help you to determine the sorts of checks your program will need to perform in the data that the user inputs.

Solution 2

```python
#input() function has been used to store user fullname into variable user_name
#string data type will be stored into varibale user_name
#title() function has been used to capitalised the first letter of user input
user_name = input("Enter your Full Name: ").title()
if len(user_name) == 0:
    print("\nYou haven't entered anything. Please enter your full name\n")
    print("Output: ",user_name)
elif len(user_name) < 4:
    print("\nYou have entered less than 4 characters. Please make sure that you have entered your name and surname\n")
    print("Output: ",user_name)
elif len(user_name) > 25:
    print("\nYou have entered more than 25 characters, Please make sure that you have only entered your full name\n")
    print("Output: ",user_name)
else:
    print("\nThank you for entering your name\n")
    print("Output: ",user_name)
```

```
Enter your Full Name: harry thapa

Thank you for entering your name

Output:  Harry Thapa
```

Question 3:

Compulsory Task 3

Follow these steps:

- Create a Python file called **courier.py** in this folder.

- You need to design a program for a courier company to calculate the cost of sending a parcel.

- Ask the user to enter the price of the package they would like to purchase.

- Ask the user to enter the total distance of the delivery in kms.

- Now add on the delivery costs to get the final cost of the product:

  o There are four categories to factor in when determining a parcel's final cost, each with two options based on their delivery preferences. (Use an if-else statement based on the choice they make.)

      - Air - R0.36 per km, or freight - R0.25 per km

      - Full insurance - R50.00, or limited insurance - R25.00

      - Gift - R15.00, or no gift - R0.00

      - Priority - R100.00, or standard delivery - R20.00

- Work out the total cost of the package based on the selection in each category.

Solution 3

			Courier -Air Mail				
Air mail	Sea mail	Full insurance	Limited insurance	Gift	No Gift	Priority delivery	Standard delivery
0.36	0.25	50	25	15	0	100	20
0.36							
0.36	0	50.36					
0.36	0	0	25.36				
0.36	0	50.36	0	65.36			
0.36	0	0	25.36	40.36			
0.36	0	50.36	0	0	50.36		
0.36	0	0	25.36	0	25.36		
0.36	0	50.36	0	65.36	0	165.36	
0.36	0	0	25.36	40.36	0	140.36	
0.36	0	50.36	0	0	50.36	150.36	
0.36	0	0	25.36	0	25.36	125.36	
0.36	0	50.36	0	65.36	0	165.36	
0.36	0	50.36	0	65.36	0	0	85.36
0.36	0	0	25.36	40.36	0	0	60.36
0.36	0	50.36	0	0	50.36	0	70.36
0.36	0	0	25.36	0	25.36	0	45.36

			Courier -Sea Mail				
Sea mail	Air mail	Full insurance	Limited insurance	Gift	No Gift	Priority delivery	Standard delivery
0.25	0.36	50	25	15	0	100	20
0.25							
0.25	0	50.25					
0.25	0	0	25.25				
0.25	0	50.25	0	65.25			
0.25	0	0	25.25	40.5			
0.25	0	50.25	0	0	50.25		
0.25	0	0	25.25	0	25.25		
0.25	0	50.25	0	65.25	0	165.25	
0.25	0	0	25.25	40.25	0	140.25	
0.25	0	50.25	0	0	50.25	150.25	
0.25	0	0	25.25	0	25.25	125.25	
0.25	0	50.25	0	65.25	0	165.25	
0.25	0	50.25	0	65.25	0	0	85.25
0.25	0	0	25.25	40.25	0	0	60.25
0.25	0	50.25	0	0	50.25	0	70.25
0.25	0	0	25.25	0	25.25	0	45.25

```python
##Variable storing fundamental values

#Price for  air service per kilometer
air = 0.36 #R0.36 per km

#price for sea service per kilometer
freight = 0.25 #R0.25 per km

#price for full inusrance cover
full_insurance = 50 #R50.00

#price for Limited insurance cover
limited_insurance = 25 #R25.00

#price for gift
gift = 15 #R15

#zero for no gift
no_gift = 0 #R0

#price for priority delivery
priority_delivery  = 100 #R100

#price for standard delivery
standard_delivery = 20 #R20


#x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x--x-x--x-x-x-x-x--x-x--x-x-x
#User will input distance in kilometer
#float() built-in function has been used for storing float value in "user_distance" variable
user_distance = float(input("Enter total distance of the delivery in kms: "))

#print command has been used to provide  details on postage of mail
print("\n Would you like  an Air Mail or Sea Mail")

#transport varibale will store string value data types from user
#"air" or "sea" in small letter are important to type for selecting airmail or seamail
#if user type "air" than control flow operation will navigate to if statement or user input "sea" than it will navigated to elif statement
transport = str(input("Type --> \"air\" or \"sea\": "))
###################################################################################################################################
###########################                             "Airmail"                    ###########################################
###################################################################################################################################
#Airmail
#if statement will compare input string value entered by user, which are stored inside varibale named "transport"
if transport == "air":
#Transport_price varibale store the summation of distance enter by user and airmail price per kilometer
    transport_price = user_distance*air
    #round() built-in has been used to round up by two decimal  place
    print("\nAirmail price:R",round(transport_price,2))

###################################################################################################################################
#Asking user for insurance
#Type "full" for full insurance or Type "limited" for limited insurance
    print("\nWould you like to cover full insured or limited insurance?")
    #insurance varibale store string input which are "full" or "limited"
    #user are only allowed to enter "full" or "limited"
    #if user enter "full" than if statement will work
    #if user eneter  "limited" than elif statement will work
    insurance = str(input(f"\n Type -> \"full\"  or  \"limited\": "))
    if insurance == "full":
```

```python
#if string value type is full, then full insurance will be sum of transport price and full insurance
        full_insurance = transport_price + full_insurance
        #round() built-in function has been used to present vatriable "full_insurance" value into neareast two decimal place
        print("\nPrice of Airmail plus Full insurance:R",round(full_insurance,2))
        print("\nWould  you like to gift or no gift?")

#Asking user for  adding gift or no gift
#if they want gift type "yes" or if they don't want gift type "no"
        user_gift = str(input("Type -> \"yes\" for gift or \"no\" for no gift: "))
        if user_gift == "yes":
        #gift variable store total of transport price, gift price and full insurance price
            gift = gift + full_insurance
            print("\nPrice of Airmail, Full insurance and Gift:R", round(gift, 2))
            print("\nWould you Priority service or Standard service?")

#Asking user for adding priority delivery or standard service
#Type "p" for priority service and "s" for standard service
            user_service = str(input("Type -> \"p\" or \"s\""))
            if user_service == "p":
            #priority_delivery store total of transport price, gift price and full insurance price, and priority_delivery price
                priority_delivery = priority_delivery + full_insurance
                print("Price of Airmail, Full insurance, Gift, and Priority delivery:R", priority_delivery)
            elif user_service =="s":
            #standard_delivery store total of transport price, gift price and full insurance price, and standard_delivery price
                standard_delivery  = standard_delivery + full_insurance
                print("Price of Airmail, Full insurance, Gift, and Standard_delivery ",standard_delivery )
        else:
            #no_gift varibale store full_insurance value
            no_gift = no_gift + full_insurance
            print("\nNo Gift :", round(no_gift,2))

#Asking user for adding priority delivery or standard service
#Type "p" for priority service and "s" for standard service
            user_service = str(input("Type -> \"p\" or \"s\""))
            if user_service == "p":
                #priority delivery variblestore addition of priority delivery and no gift,no gift is zero
                priority_delivery = priority_delivery + no_gift
                print("Price of Airmail, Full insurance, Gift, and Priority delivery:R", priority_delivery)
            elif user_service =="s":
                #standard_delivery store total of transport price, no gift price and full insurance price, and standard_delivery price
                standard_delivery  = standard_delivery + no_gift
                print("Price of Airmail, Full insurance, Gift, and Standard_delivery ",standard_delivery )


##########################################################################################################################
    elif insurance == "limited":
        limited_insurance = transport_price + limited_insurance
        print("\nPrice of Airmail plus limited insurance:R",round(limited_insurance,2))
        print("\nWould  you like to gift or no gift?")

#Asking user for  adding gift or no gift
#if want gift type "yes" or "no" for no gift
        user_gift = str(input("Type -> yes for gift or no for no gift: "))
        if user_gift == "yes":
            gift = gift + limited_insurance
            print("\nPrice of Airmail, Full insurance and Gift:R", round(gift, 2))
            print("\nWould you Priority service or Standard service?")

#Asking user for adding priority delivery or standard service
#Type "p" for priority service and "s" for standard service
            user_service = str(input("Type -> p or s"))
```

```python
        if user_service == "p":
            #priority delivery = total cost of transport price, gift, limited insurance and priority postage
            priority_delivery = priority_delivery + gift
            print("Price of Airmail, Full insurance, Gift, and Priority delivery:R", priority_delivery)
        elif user_service =="s":
            #standard_delivery store total of transport price, gift price and limited insurance price, and standard_delivery price
            standard_delivery  = standard_delivery + gift
            print("Price of Airmail, Full insurance, Gift, and Standard_delivery ",standard_delivery )
    else:
        no_gift = no_gift + limited_insurance
        print("\nNo Gift :", round(no_gift,2))

#Asking user for adding priority delivery or standard service
#Type "p" for priority service and "s" for standard service
        user_service = str(input("Type -> p or s"))
        if user_service == "p":
        #priority_delivery variable store total cost of transportation, limited insurance, priority_delivery, and no_gift
            priority_delivery = priority_delivery + no_gift
            print("Price of Airmail, Full insurance, Gift, and Priority delivery:R", priority_delivery)
        elif user_service =="s":
        #standard_delivery variable store total cost of transportation, limited insurance, priority_delivery, and no_gift
            standard_delivery  = standard_delivery + no_gift
            print("Price of Airmail, Full insurance, Gift, and Standard_delivery ",standard_delivery )




################################################################################################################################
###########################                                "Freight"                     #######################################
################################################################################################################################
elif transport == "sea":
    transport_price = user_distance*freight
    print("\nFreight price: R",transport_price)

################################################################################################################################
#Asking user for insurance
#Type "full" for full insurance or Type "limited" for limited insurance

    print(f"\nWould you like to Full insured or limited insurance?")
    #insurance varibale store string input which are "full" or "limited"
    #user are only allowed to enter "full" or "limited"
    #if user enter "full" than if statement will work
    #if user eneter  "limited" than elif statement will work
    insurance = str(input("\nType -> \"full\"  or  \"limited\": "))

#if string value type is full, then full insurance will be sum of transport price and full insurance
    if insurance == "full":
        full_insurance = transport_price + full_insurance
        print("\nPrice of Freight plus Full insurance:R",round(full_insurance,2))
        print("\nWould  you like to gift or no gift?")

#Asking user for  adding gift or no gift
#if want gift type "yes" or "no" for no gift
        user_gift = str(input("Type -> \"yes\" for gift or \"no\" for no gift: "))
        if user_gift == "yes":
            gift = gift + full_insurance
            print("\nPrice of Freight, Full insurance and Gift:R", round(gift, 2))
            print("\nWould you Priority service or Standard service?")

#Asking user for adding priority delivery or standard service
#Type "p" for priority service and "s" for standard service
            user_service = str(input("Type -> \"p\"or \"s\""))
```

```python
        if user_service == "p":
            priority_delivery = priority_delivery + gift
            print("Price of Freight, Full insurance, Gift, and Priority delivery:R", priority_delivery)
        elif user_service =="s":
            standard_delivery  = standard_delivery + gift
            print("Price of Freight, Full insurance, Gift, and Standard_delivery ",standard_delivery )
    else:
        no_gift = no_gift + full_insurance
        print("\nNo Gift :", round(no_gift,2))

#Asking user for adding priority delivery or standard service
#Type "p" for priority service and "s" for standard service
        user_service = str(input("Type -> \"p\" or \"s\""))
        if user_service == "p":
            priority_delivery = priority_delivery + no_gift
            print("Price of Airmail, Full insurance, Gift, and Priority delivery:R", priority_delivery)
        elif user_service =="s":
            #standard_delivery store total of transport price, gift price and full insurance price, and standard_delivery price
            standard_delivery  = standard_delivery + no_gift
            print("Price of Airmail, Full insurance, Gift, and Standard_delivery ",standard_delivery )


##############################################################################################################
    elif insurance == "limited":
        limited_insurance = transport_price + limited_insurance
        print("\nPrice of Freight plus limited insurance:R",round(limited_insurance,2))
        print("\nWould  you like to gift or no gift?")

#Asking user for  adding gift or no gift
#if want gift type "yes" or "no" for no gift
        user_gift = str(input("Type -> \"yes\" for gift or \"no\" for no gift: "))
        if user_gift == "yes":
            gift = gift + limited_insurance
            print("\nPrice of Freight, Full insurance and Gift:R", round(gift, 2))
            print("\nWould you Priority service or Standard service?")

#Asking user for adding priority delivery or standard service
#Type "p" for priority service and "s" for standard service
            user_service = str(input("Type -> \"p\" or \"s\""))
            if user_service == "p":
                priority_delivery = priority_delivery + gift
                print("Price of Freight, Full insurance, Gift, and Priority delivery:R", priority_delivery)
            elif user_service =="s":
                #standard_delivery store total of transport price, gift price and full insurance price, and standard_delivery price
                standard_delivery  = standard_delivery + gift
                print("Price of Freight, Full insurance, Gift, and Standard_delivery ",standard_delivery )
        else:
            no_gift = no_gift + limited_insurance
            print("\nNo Gift :", round(no_gift,2))

#Asking user for adding priority delivery or standard service
#Type "p" for priority service and "s" for standard service
        user_service = str(input("Type -> \"p\" or \"s\""))
        if user_service == "p":
            #priority_delivery variable store total cost of transportation, limited insurance, priority_delivery, and no_gift
            priority_delivery = priority_delivery + no_gift
            print("Price of Freight, Full insurance, Gift, and Priority delivery:R", priority_delivery)
        elif user_service =="s":
            #standard_delivery store total of transport price, gift price and full insurance price, and standard_delivery price
            standard_delivery  = standard_delivery + no_gift
            print("Price of Freight, Full insurance, Gift, and Standard_delivery ",standard_delivery )
```

```
Enter total distance of the delivery in kms: 1

 Would you like  an Air Mail or Sea Mail
Type --> "air" or "sea": air

Airmail price:R 0.36

Would you like to cover full insured or limited insurance?

 Type -> "full"  or  "limited": full

Price of Airmail plus Full insurance:R 50.36

Would  you like to gift or no gift?
Type -> "yes" for gift or "no" for no gift: yes

Price of Airmail, Full insurance and Gift:R 65.36

Would you Priority service or Standard service?
Type -> "p" or "s"p
Price of Airmail, Full insurance, Gift, and Priority delivery:R 150.36
```