Nina Ngouabou

Control flow

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CloudSpace Academy

LAB 1

Lab Cake

Lab-cake1: Check for even or odd

Write a program that will ask user for a number than check whether that number is EVEN or ODD.

Display on the screen:

Please enter a number between 1-100.

Your number user_number is even/odd.

```python
# Write a program that will ask the user for a number that check wether that number is EVEN or ODD

number = int(input("Please enter a number between 1-100:\n"))


# we use the modulus operator % which gives the remainder of the division
# if the number %2 == 0, the number is evenly divisible by 2, meaning its's an even number

if number % 2 == 0:
    print (f"Your user_number {number} is even")

# if number % 2 != 0, the number has a remainder of 1 when divided by 2, meaning it's an odd number

else:
    print (f"Your user_number {number} is odd")
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS COMMENTS

```
WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python control_flow_lab_1.py
Please enter a number between 1-100:
88
Your user_number 88 is even

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python control_flow_lab_1.py
Please enter a number between 1-100:
51
Your user_number 51 is odd
```

LAB 2

Lab Cake

Lab-cake2: grade-calculator.py

Write a program that will ask a student for a their grade in 5 subjects.

Calculate your average grade and print grade from A-E.
A > 90
B > 80
C > 70
D > 60
E --- Failed ☹

Display on the screen: Provide the screenshot and github link. Submit your homework in your github account as well. Create a folder Python-codes

```python
# Write a program that will ask a student for their grade in 2 subjects
# First, we define all the subjects (variables) and assign them to a value, then using the input function that will prompt the user to enter their grades

Math = float(input("Enter your math grade:\t"))
Science = float(input("Enter your science grade:\t"))
Art = float(input("Enter your art grade:\t"))
History = float(input("Enter your history grade here:\t"))
English = float(input("Enter your english grade here:\t"))

# using the sum function to calculate the average grade to determine the score of the student

average_grade = sum([Math, Science, Art, History, English]) /5

# The print statement will display the average score of the student and round it to 2 decimal points

print (f"Your average grade is: {average_grade:.2f}")

if average_grade > 90:
    print("Your grade is A, Great job! Keep up the excellent work!!")

elif average_grade > 80:
    print("Your grade is B, You're doing well here! With a little more focus, you can push this up to an A!!")

elif average_grade > 70:
    print ("Your grade is C, You're holding steady, but there's definitely room for improvement!!")

elif average_grade > 60:
    print ("Your grade is D, This grade shows you're struggling. It might help to revisit some concepts or seek additional support!!")


else:
    print ("Your score is E, Sorry, you have failed. Don't get discouraged, just practice more and seek help!!")

```

The following screen shot shows all the possible outcomes from the code above

```
$ python grade_calculator.py
Enter your math grade:  91.3
Enter your science grade:       98.3
Enter your art grade:   92.7
Enter your history grade here:  95
Enter your english grade here:  97.4
Your average grade is: 94.94
Your grade is A, Great job! Keep up the excellent work!!

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python grade_calculator.py
Enter your math grade:  87
Enter your science grade:       91.5
Enter your art grade:   82.1
Enter your history grade here:  80.6
Enter your english grade here:  85
Your average grade is: 85.24
Your grade is B, You're doing well here! With a little more focus, you can push this up to an A!!

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python grade_calculator.py
Enter your math grade:  72.2
Enter your science grade:       81.6
Enter your art grade:   77.1
Enter your history grade here:  75.7
Enter your english grade here:  80.4
Your average grade is: 77.40
Your grade is C, You're holding steady, but there's definitely room for improvement!!

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python grade_calculator.py
Enter your math grade:  55.9
Enter your science grade:       71.3
Enter your art grade:   68
Enter your history grade here:  56.4
Enter your english grade here:  80
Your average grade is: 66.32
Your grade is D, This grade shows you're struggling. It might help to revisit some concepts or seek additional support!!

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python grade_calculator.py
Enter your math grade:  45
Enter your science grade:       38.6
Enter your art grade:   50.2
Enter your history grade here:  42.4
Enter your english grade here:  48
Your average grade is: 44.84
Your score is E, Sorry, you have failed. Don't get discouraged, just practice more and seek help!!
```

LAB 3

Homework

Lab-cake 3: age-group-categorization.py

Prompt the user to enter their age as an integer.

Based on the input, categorize the person into one of the following life stages:
Infant: 0 - 1 year
Toddler: 2 - 3 years
Child: 4 - 12 years
Teenager: 13 - 19 years
Adult: 20 - 64 years
Senior: 65 years and older
Display the appropriate life stage.

If the user enters a negative number or a non-realistic number (e.g., more than 150), display an "Invalid age" message.

Display on the screen: Provide the screenshot and github link.
Submit your homework in your github account as well. Create a folder Python-codes

```python
# Prompt the user to enter age as in integer

age = int(input("Enter your {age}:\t"))

# using the less than or equal operator to check if the age falls within a certain range

if 0 <= age <= 1 :
    print("You are an infant")

elif 2 <= age <= 3 :
    print ("You are a toddler")

elif 4 <= age <= 12 :
    print ("You are a child")

elif 13 <= age <= 19:
    print ("You are a teenager")

elif 20 <= age <= 64:
    print ("You are an adult")

elif 65 <= age <= 130:
    print ("You are a senior")

# if none of the ages the user will enter is valid, this message will appear instead
else:
    print ("Invalid age")

```

All the possible outcomes are as follow

```
WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python age_group_categorization.py
Enter your {age}:       1
You are an infant

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python age_group_categorization.py
Enter your {age}:       3
You are a toddler

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python age_group_categorization.py
Enter your {age}:       8
You are a child

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python age_group_categorization.py
Enter your {age}:       17
You are a teenager

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python age_group_categorization.py
Enter your {age}:       51
You are an adult

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python age_group_categorization.py
Enter your {age}:       110
You are a senior

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python age_group_categorization.py
Enter your {age}:       -55
Invalid age

WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python age_group_categorization.py
Enter your {age}:       150
Invalid age
```