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Task no: 01.

Question:

- 1. Install Python & print version.**
- 2. Run hello script printing your name.**

Code 1:

```
D: > Python projects > Untitled-1.py  
1 import sys  
2 print(sys.version)
```

Step-by-Step Instructions:

- 1. Import sys will import all the python version data**
- 2. print will display data on screen as output**

Output:

```
PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
3.13.5 (tags/v3.13.5:6cb20a2, Jun 11 2025, 16:15:46) [MSC v.1943 64 bit (AMD64)]
PS C:\Users\Fame> █
```

Learning, Challenges and Solutions:

- learned how to display or print your python installed version

Code 2:

```
D: > Python projects > Untitled-1.py
1 print("Hello, I'm M.Ahmad Raza Qadri!")
```

Step-by-Step Instructions:

1. print will output the data written in it as output in this case my name

Output:

```
PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Hello, I'm M.Ahmad Raza Qadri!
PS C:\Users\Fame> █
```

Learning, Challenges and Solutions:

- learned how to print anything like your name in python

Task no: 02.

Question:

1. Fix badly-indented code.
2. Add comments explaining each step.

Badly-Indented code with output:

```
D: > Python projects > Untitled-1.py > ...  
1 name = "Ahmad"  
2 if name == "Ahmad":  
3     print("Hello, Ahmad!")  
4  
5  
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS  
PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"  
File "d:/Python projects/Untitled-1.py", line 3  
    print("Hello, Ahmad!")  
    ^^^^^  
IndentationError: expected an indented block after 'if' statement on line 2  
PS C:\Users\Fame>
```

Fixed Badly-Indented code with output:

```
D: > Python projects > Untitled-1.py > ...  
1 name = "Ahmad" # This line is fine, no indentation needed  
2  
3 if name == "Ahmad": # Start of the if block  
4     | print("Hello, Ahmad!") #This line is indented correctly (4 spaces) to show it's inside the if block  
5  
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS  
PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"  
Hello, Alice!  
PS C:\Users\Fame>
```

Step-by-Step Instructions:

- Assigned name==Ahmad
- If name entered will be Ahmad then it will print hello Ahmad

Learning, Challenges and Solutions:

- Learned how to write a code in python with its syntax or correct indentation like giving 4 spaces before print etc.

Task no: 03.

Question:

1. Collect user profile & print typed summary.
2. Swap two variables without temp var.

Code 01 with Output:

```
D: > Python projects > Untitled-1.py > ...
1  name = input("Enter your name: ")
2  age = int(input("Enter your age: "))
3
4  print("\nUser Profile Summary")
5  print(f"Name : {name}")
6  print(f"Age  : {age}")
7

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Enter your name: Ahmad
Enter your age: 19

User Profile Summary
Name : Ahmad
Age  : 19
PS C:\Users\Fame> 
```

Step-by-Step Instructions:

- Input your name and age
- It will print User Profile Summary in line 4
- Then it will print your name and age as output

Learning, Challenges and Solutions:

- Learned about printing
- Creating profile summary
- We can also add more sections In it

Code 02 with Output:

```
D: > Python projects > Untitled-1.py > ...
1  X = int(input("Enter first number (X): "))
2  Y = int(input("Enter second number (Y): "))
3  X, Y = Y, X
4
5  print("\nAfter swapping:")
6  print("X =", X)
7  print("Y =", Y)

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Enter first number (X): 1
Enter second number (Y): 2

After swapping:
X = 2
Y = 1
PS C:\Users\Fame> 
```

Step-by-Step Instructions:

- Take value for x and y

- Swapping by $X, Y=Y, X$
- Printing swapped values

Learning, Challenges and Solutions:

- Learned how to swap values between two variables
- Swapped without using temp variable

Task no: 04.

Question:

1. Read three numbers; output avg.
2. Convert minutes to hours + minutes.

Code 01 with Output:

```
D: > Python projects > Untitled-1.py > ...  
1 num1 = float(input("Enter first number: "))  
2 num2 = float(input("Enter second number: "))  
3 num3 = float(input("Enter third number: "))  
4 average = (num1 + num2 + num3) / 3  
5 print("\nAverage:", average)  
  
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS  
  
PS C:\Users\Fame> & C:\Users\Fame\AppData\Local\Programs\Python\Python313\python.exe "d:/Python projects/Untitled-1.py"  
Enter first number: 1  
Enter second number: 2  
Enter third number: 3  
  
Average: 2.0  
PS C:\Users\Fame> |
```

Step-by-Step Instructions:

- Input number 1,2,3
- Used formula of Average of 3 numbers
- Output the average

Learning, Challenges and Solutions:

- Learned how to print average of 3 numbers
- We can also print avg of more than 3 numbers as well by changing formula

Code 02 with Output:

```
D: > Python projects > Untitled-1.py > ...
1 total_minutes = int(input("Enter total minutes: "))
2 hours = total_minutes // 60
3 minutes = total_minutes % 60
4 print(f"\n{total_minutes} minutes = {hours} hour(s) and {minutes} minute(s)")
5

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Enter total minutes: 90

90 minutes = 1 hour(s) and 30 minute(s)
PS C:\Users\Fame>
```

Step-by-Step Instructions:

- Input total minutes
- `hours = total_minutes // 60` will do integer division for hours
- `minutes = total_minutes % 60` will give remainder for minutes
- at the end output will be displayed

Learning, Challenges and Solutions:

- learned how to convert minutes in to format of hours and minutes

Task no: 05.

Question:

1. BMI calc from user input.

2. Simple interest calc.

Code 01 with Output:

```
D: > Python projects > Untitled-1.py > ...
1 weight = float(input("Enter your weight in kg: "))
2 height = float(input("Enter your height in meters: "))
3 bmi = weight / (height ** 2)
4 print("\nYour BMI is:", round(bmi, 2))
5

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Enter your weight in kg: 57.4
Enter your height in meters: 150
```

Step-by-Step Instructions:

- input weight in kg and height in meters
- used formula for calculating BMI
- print the calculated bmi

Learning, Challenges and Solutions:

- learned how to make a simple BMI(Body Mass Index) calculator

Code 02 with Output:

```
D: > Python projects > Untitled-1.py > ...
1 principal = float(input("Enter principal amount: "))
2 rate = float(input("Enter the rate of interest (% per year): "))
3 time = float(input("Enter the time (in years): "))
4 simple_interest = (principal * rate * time) / 100
5 print("\nSimple Interest is:", round(simple_interest, 2))

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Enter principal amount: 5000
Enter the rate of interest (% per year): 2
Enter the time (in years): 1

Simple Interest is: 100.0
PS C:\Users\Fame>
```

Step-by-Step Instructions:

- input principal or total amount
- input rate of interest on that amount
- input time duration in years
- using formula $\text{Simple Interest} = P \times R \times T / 100$
- print the output

Learning, Challenges and Solutions:

- learned how to calculate simple interest on any amount

Task no: 06.

Question:

1. Username builder from full name.
2. Vowel/consonant counter.

Code 01 with Output:

```
D: > Python projects > Untitled-1.py > ...
2 parts = full_name.strip().split()
3 if len(parts) >= 2:
4     first_name = parts[0]
5     last_name = parts[-1]
6     username = (first_name[0] + last_name).lower()
7     print("Generated username:", username)
8 else:
9     print("Please enter at least a first and last name.")
10
11
```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Enter your full name: Ahmad Raza
Generated username: araza
PS C:\Users\Fame>
```

Step-by-Step Instructions:

- This program takes a full name and creates a username by combining parts of the name.
- Use the first letter of the first name + last name, all in lowercase
- Input: "Ahmad Raza"
- Output: araza

Learning, Challenges and Solutions:

- Learned how to shorten name with entering full username

Code 02 with Output:

```
D: > Python projects > Untitled-1.py > ...
1 text = input("Enter a word or sentence: ").lower()
2 vowels = 0
3 consonants = 0
4 vowel_set = "aeiou"
5 for char in text:
6     if char.isalpha():
7         if char in vowel_set:
8             vowels += 1
9         else:
10            consonants += 1
11 print("\nVowels:", vowels)
12 print("Consonants:", consonants)
13
```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Enter a word or sentence: hi my name is ahmad

Vowels: 6
Consonants: 9
PS C:\Users\Fame>
```

Step-by-Step Instructions:

- Inputs a sentence
- Counts vowels and consonants in a given sentence or word.
- Uses an for loop to check
- Uses if else statements to check for vowels and constants
- Prints them

Learning, Challenges and Solutions:

- Learned how to make a constant and vowel counter in python for a sentence
- Can also make them both an separate program
- One for counting vowel and other for constants

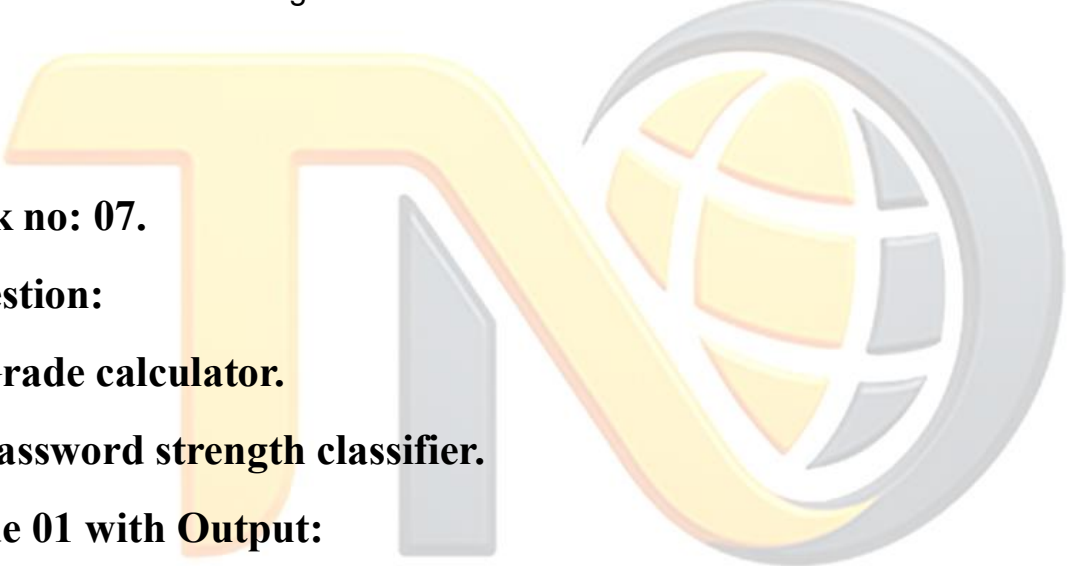
Task no: 07.

Question:

1. Grade calculator.

2. Password strength classifier.

Code 01 with Output:



```
D: > Python projects > Untitled-1.py > [e] marks
1 marks = float(input("Enter your marks (out of 100): "))
2 if marks >= 90:
3     grade = 'A'
4 elif marks >= 80:
5     grade = 'B'
6 elif marks >= 70:
7     grade = 'C'
8 elif marks >= 60:
9     grade = 'D'
10 else:
11     grade = 'F'
12 print("Your Grade is:", grade)
13
```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Enter your marks (out of 100): 70
Your Grade is: C
PS C:\Users\Fame>
```

Step-by-Step Instructions:

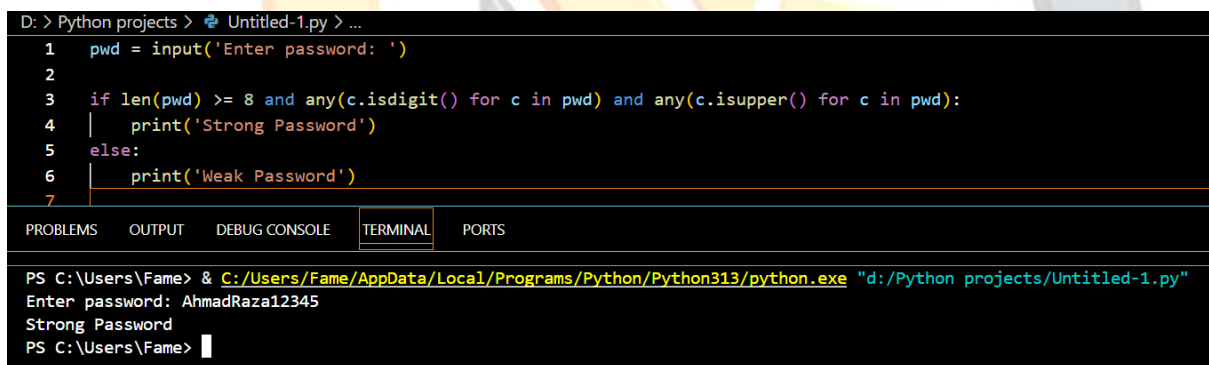
This program calculates the grade based on marks entered.

- Inputs total marks out of 100
- Uses if and elif to determine grades as :
- 90–100: A
- 80–89: B
- 70–79: C
- 60–69: D
- Below 60: F
- Print calculated grade

Learning, Challenges and Solutions:

- Learned how to make a grade calculator
- Using else if in python

Code 02 with Output:



```

D: > Python projects > Untitled-1.py > ...
1  pwd = input('Enter password: ')
2
3  if len(pwd) >= 8 and any(c.isdigit() for c in pwd) and any(c.isupper() for c in pwd):
4      print('Strong Password')
5  else:
6      print('Weak Password')
7
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Enter password: AhmadRaza12345
Strong Password
PS C:\Users\Fame>

```

Step-by-Step Instructions:

- Inputs an password
- If password is greater than 8 characters an contains digit and upper case letter than print strong password
- Otherwise print weak password usinf if else

Learning, Challenges and Solutions:

- Learned how to make an easy pawword checker whether is it strong or weak

Task no: 08.

Question:

1. Multiplication table.

2. Sum numbers divisible by 3.

Code 01 with Output:

```
D: > Python projects > Untitled-1.py > ...
1 num = int(input("Enter a number to print its multiplication table: "))
2 print(f"\nMultiplication table for {num}:")
3 for i in range(1, 11):
4     print(f"{num} x {i} = {num * i}")
5

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Enter a number to print its multiplication table: 2

Multiplication table for 2:
2 x 1 = 2
2 x 2 = 4
2 x 3 = 6
2 x 4 = 8
2 x 5 = 10
2 x 6 = 12
2 x 7 = 14
2 x 8 = 16
2 x 9 = 18
2 x 10 = 20
PS C:\Users\Fame>
```

Step-by-Step Instructions:

- This prints the multiplication table of a number entered by the user.
- Inputs a number
- Uses for loop until gets multiplication table for that number x10
- Prints the results

Learning, Challenges and Solutions:

- learned how to print table number of a number
- challenge was to print its format
- concentration solves that

Code 02 with Output:

```
D: > Python projects > Untitled-1.py > limit
1 limit = int(input("Enter the upper limit: "))
2 total = 0
3 for i in range(1, limit + 1):
4     if i % 3 == 0:
5         total += i
6 print(f"\nSum of numbers divisible by 3 from 1 to {limit} is: {total}")
7

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/Untitled-1.py"
Enter the upper limit: 4

Sum of numbers divisible by 3 from 1 to 4 is: 3
PS C:\Users\Fame>
```

Step-by-Step Instructions:

- Ask the user for input
- Set up a variable to keep track of the total
- Loop from 1 to the limit
- Check if the number is divisible by 3
- Add the divisible number to the total
- Print the result

Learning, Challenges and Solutions:

- Learned how to calculate the sum of numbers divisible by 3 from 1 to a given limit.

Task no: 09.

Question:

CLI Unit Converter: length, weight, temperature menus + loops & conditionals

Code:

```
D: > Python projects > tasks > week 01 tasks > hardproj.py > weight_converter

1  def length_converter():
2      print("\nLength Conversion:")
3      print("1. Kilometers to Miles")
4      print("2. Miles to Kilometers")
5      choice = input("Choose an option (1 or 2): ")
6
7      if choice == "1":
8          km = float(input("Enter distance in kilometers: "))
9          miles = km * 0.621371
10         print(f"{km} km = {miles:.2f} miles")
11     elif choice == "2":
12         miles = float(input("Enter distance in miles: "))
13         km = miles / 0.621371
14         print(f"{miles} miles = {km:.2f} km")
15     else:
16         print("Invalid choice.")
17
18  def weight_converter():
19      print("\nWeight Conversion:")
20      print("1. Kilograms to Pounds")
21      print("2. Pounds to Kilograms")
22      choice = input("Choose an option (1 or 2): ")
23
24      if choice == "1":
25          kg = float(input("Enter weight in kilograms: "))
26          pounds = kg * 2.20462
27          print(f"{kg} kg = {pounds:.2f} pounds")
28     elif choice == "2":
29         pounds = float(input("Enter weight in pounds: "))
30         kg = pounds / 2.20462
31         print(f"{pounds} pounds = {kg:.2f} kg")
```

```

32     else:
33         print("Invalid choice.")
34
35 def temperature_converter():
36     print("\nTemperature Conversion:")
37     print("1. Celsius to Fahrenheit")
38     print("2. Fahrenheit to Celsius")
39     choice = input("Choose an option (1 or 2): ")
40
41     if choice == "1":
42         c = float(input("Enter temperature in Celsius: "))
43         f = (c * 9/5) + 32
44         print(f"{c}°C = {f:.2f}°F")
45     elif choice == "2":
46         f = float(input("Enter temperature in Fahrenheit: "))
47         c = (f - 32) * 5/9
48         print(f"{f}°F = {c:.2f}°C")
49     else:
50         print("Invalid choice.")
51 while True:
52     print("\n=== Unit Converter Menu ===")
53     print("1. Length")
54     print("2. Weight")
55     print("3. Temperature")
56     print("4. Exit")
57
58     main_choice = input("Choose a category (1-4): ")
59
60     if main_choice == "1":
61         length_converter()
62     elif main_choice == "2":
63         weight_converter()
64     elif main_choice == "3":
65         temperature_converter()
66     elif main_choice == "4":
67         print("Goodbye!")
68         break
69     else:
70         print("Invalid input. Please choose from 1 to 4.")
71

```

Output

```

PS C:\Users\Fame> & C:/Users/Fame/AppData/Local/Programs/Python/Python313/python.exe "d:/Python projects/tasks/week 01 tasks/hardproj.py"

=== Unit Converter Menu ===
1. Length
2. Weight
3. Temperature
4. Exit
Choose a category (1-4): 2

Weight Conversion:
1. Kilograms to Pounds
2. Pounds to Kilograms
Choose an option (1 or 2): 2
Enter weight in pounds: 12
12.0 pounds = 5.44 kg

=== Unit Converter Menu ===
1. Length
2. Weight
3. Temperature
4. Exit
Choose a category (1-4): 4
Goodbye!
PS C:\Users\Fame>

```

Step-by-Step Instructions:

- Plan What You Want to Convert
- Define Functions for Each Converter
 - 1. Length Converter
 - 2 Weight Converter
 - 3 Temperature Converter
- Create the Main Menu with a Loop
 - The menu to appear again and again until the user chooses to exit.
 - Uses if, else, elif for choices
 - Used different formulas of conversions
 - Then print output according to choices made by user

Learning, Challenges and Solutions:

- Learned how to make cli converter
- That convert length, weight and temperature
- Uses conditionals and loop was challenging
- Solved the problem by taking concept and little help from AI bots

