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Week: **Week1=Python Basics**

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TECHNIK NEST

Task1: Fixing Badly Indented Code:

Screenshot:

```python
#Fixing badly Indented

#-------A badly indented code that will give some errors------
  #name = input("Enter your name: ")
#if name == "Gulzareen":
#print("Hello Gulzareen!")
 #print("Welcome to Python basics.")
#else:
#print("Hi there!")
  #print("Let's start learning Python.")

#----Lets fix this-----
name = input("Enter your name: ")
if name == "Gulzareen":
    print("Hello Gulzareen!")    #here was the first error that was corrected with 4 spaces
    print("Welcome to Python basics.")#same
else:
    print("Hi there!")#//
    print("Let's start learning Python.")#//
#Now i will run perfectly without any errors
```

Output:

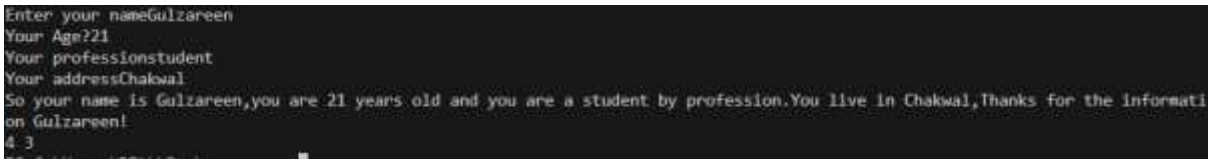
```
Enter your name: Gulzareen
Hello Gulzareen!
Welcome to Python basics.
```

Task2: User Profile Summary & Swapping of Values B/w Variables without using extra variable:

Screenshot:

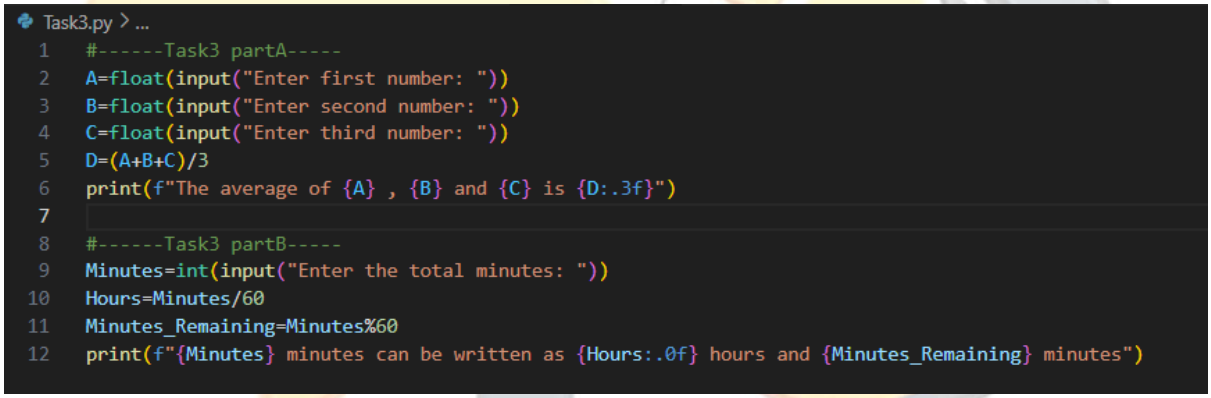
```python
#--------Task2  PartA-----
A=input("Enter your name")
B=input("Your Age?")
C=input("Your profession")
D=input("Your address")
print(f"So your name is {A},you are {B} years old and you are a {C} by profession.You live in {D},Thanks for the information {A}!")

#--------Task2  PartB-----
A=3
B=4
A,B=B,A
print(A,B)  #This line will just swap A and B
```

Output:

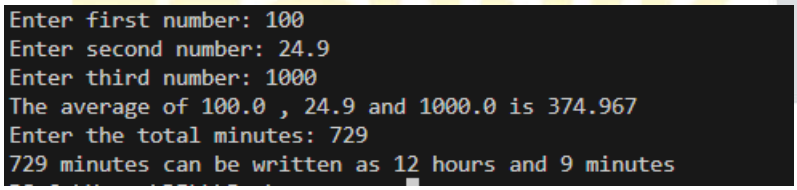


Task3: Calculating Average of three numbers & Converting Minutes into Hours+Minutes:

Screeshot:



Output:



Task4: BMI Calculator & Simple Interest Calculator:

Screeshot:

```python
#------BMI CALCULATOR------
Height=float(input("Enter your height in meters: "))
Weight=int(input("Enter your weight in kilograms: "))

BMI=Weight/Height**2

if BMI<18.5:
    print("You are underweight")
elif 24.9<BMI<29.9:
    print("You are overweight")
elif 18.5<BMI<24.9:
    print("You are normal weight")
else:
    print("You are obese")

#------SIMPLE INTEREST CALCULATOR----
Principal=int(input("Enter the initial amount(in Rs): "))
Rate=float(input("Enter the interest rate: "))
Time=int(input("Enter the time period(in years): "))
Simple_Interest=(Principal*Rate*Time)/100
Total_amount=Principal+Simple_Interest
print(f"Simple Interest earned after {Time} years with rate of {Rate} percent on amount of Rs{Principal} is: Rs{Simple_Interest:.2f}")
print(f"Total amount after {Time} years is: Rs{Total_amount:.2f}")
```

Output:

```
Enter your height in meters: 1.8
Enter your weight in kilograms: 55
You are underweight
Enter the initial amount(in Rs): 10000
Enter the interest rate: 10
Enter the time period(in years): 5
Simple Interest earned after 5 years with rate of 10.0 percent on amount of Rs10000 is: Rs5000.00
Total amount after 5 years is: Rs15000.00
```

Task5: User-name Generation & Vowels/Consonants Counter:

Screenshot:

Task5.py > ...

```python
#------User name Generation------
Name=input("Enter your full name: ")
Parts=Name.strip().split()
import random
random_no=random.randint(0,100)
if len(Parts)>=2:
    print(f"Your username generated is:{Parts[0].lower()}{Parts[-1].lower()}{random_no}")
else:
    print(f"your usename generated is: {Parts[0].lower()}{random_no}")


 #-----Vowels\Consonants Counter----
A=input("Enter a word or a sentence: ")
vowels=0
consonants=0
for char in A:
    if char.isalpha():
        if char.lower() in 'aeiou':
            vowels+=1
        else:
            consonants+=1


print(f"Total vowels={vowels}")
print(f"Total consonants={consonants}")
```

Output:

```
Enter your full name:  Gul Zareen Hassan
Your username generated is:gulhassan79
Enter a word or a sentence: My name is Gul Zareen
Total vowels=7
Total consonants=10
```

Task6: Grade Calculator & Password Strength Classifier:

Screeshot:

Task6.py > ...

```python
# ----- GRADE CALCULATOR -----
marks = float(input("Enter your marks (out of 100): "))

if marks >= 90 and marks <= 100:
    grade = "A+"
elif marks >= 80:
    grade = "A"
elif marks >= 70:
    grade = "B"
elif marks >= 60:
    grade = "C"
elif marks >= 50:
    grade = "D"
elif 0<=marks<50:
    grade = "F"
else:
    grade = "Invalid input"

print(f"Your grade is: {grade}")

# ----- PASSWORD STRENGTH CLASSIFIER -----
password = input("Enter your password: ")

length = len(password)
lower = 0
upper = 0
digits = 0
special = 0

for char in password:
    if char.islower():
        lower += 1
    elif char.isupper():
        upper += 1
    elif char.isdigit():
        digits += 1
    else:
        special += 1

if length >= 8 and lower > 0 and upper > 0 and digits > 0 and special > 0:
    strength = "Strong"
elif length >= 6 and lower > 0 and digits > 0:
    strength = "Moderate"
else:
    strength = "Weak"

print(f"Strength: {strength}")
```

Output:

```
Enter your marks (out of 100): 80
Your grade is: A
Enter your password: gul34@6
Strength: Moderate
```

Task7: Multiplication Table & Sum of numbers Divisible by 3:

Screenshot:

Task7.py > ...

```python
# ----- MULTIPLICATION TABLE -----
number = int(input("Enter a number to generate its multiplication table: "))

print(f"\nMultiplication Table of {number}:\n")

for i in range(1, 11):
    print(f"{number} x {i} = {number * i}")



    # ----- SUM OF NUMBERS DIVISIBLE BY 3-----
start = int(input("Enter start of range: "))
end = int(input("Enter end of range: "))
total = 0
ending_no=end-1

for i in range(start, end + 1):
    if i % 3 == 0:
        total += i

print(f"Sum of numbers divisible by 3 from {start} to {ending_no} is: {total}")
```

Output:

```
Enter a number to generate its multiplication table: 19

Multiplication Table of 19:

19 x 1 = 19
19 x 2 = 38
19 x 3 = 57
19 x 4 = 76
19 x 5 = 95
19 x 6 = 114
19 x 7 = 133
19 x 8 = 152
19 x 9 = 171
19 x 10 = 190
Enter start of range: 0
Enter end of range: 99
Sum of numbers divisible by 3 from 0 to 98 is: 1683
```

Task8: CLI Unit Converter (Challenge Task Week1):

Screenshot:

Task8.py > ...

```python
# ----- CLI UNIT CONVERTER -----
while True:
    print("\n----- UNIT CONVERTER MENU -----")
    print("1. Length Converter")
    print("2. Weight Converter")
    print("3. Temperature Converter")
    print("4. Exit")
    choice = input("Choose an option (1-4): ")
  # ----- LENGTH -----
    if choice == "1":
        print("\n--- Length Converter ---")
        value = float(input("Enter length: "))
        unit = input("Is this in (m)eters or (km)? ").lower()

        if unit == "m":
            print(f"{value} meters = {value / 1000:.3f} kilometers")
        elif unit == "km":
            print(f"{value} kilometers = {value * 1000:.2f} meters")
        else:
            print("Invalid unit!")
# ----- WEIGHT -----
    elif choice == "2":
        print("\n--- Weight Converter ---")
        value = float(input("Enter weight: "))
        unit = input("Is this in (kg) or (lb)? ").lower()

        if unit == "kg":
            print(f"{value} kg = {value * 2.20462:.2f} pounds")
        elif unit == "lb":
            print(f"{value} pounds = {value / 2.20462:.2f} kg")
        else:
            print("Invalid unit!")
# ----- TEMPERATURE -----
    elif choice == "3":
        print("\n--- Temperature Converter ---")
        temp = float(input("Enter temperature: "))
        unit = input("Is this in (C), (F), or (K)? ").upper()

        if unit == "C":
            print(f"{temp}°C = {(temp * 9/5) + 32:.2f}°F")
            print(f"{temp}°C = {temp + 273.15:.2f} K")
        elif unit == "F":
            print(f"{temp}°F = {(temp - 32) * 5/9:.2f}°C")
            print(f"{temp}°F = {((temp - 32) * 5/9) + 273.15:.2f} K")
        elif unit == "K":
            print(f"{temp} K = {temp - 273.15:.2f}°C")
            print(f"{temp} K = {((temp - 273.15) * 9/5) + 32:.2f}°F")
        else:
            print("Invalid unit!")
# ----- EXIT -----
    elif choice == "4":
        print("Exiting program. Goodbye!")
        break
    else:
        print("Invalid option! Please choose between 1-4.")
```

Output:

```
----- UNIT CONVERTER MENU -----
1. Length Converter
2. Weight Converter
3. Temperature Converter
4. Exit
Choose an option (1-4): 3

--- Temperature Converter ---
Enter temperature: 45
Is this in (C), (F), or (K)? c
45.0°C = 113.00°F
45.0°C = 318.15 K

----- UNIT CONVERTER MENU -----
1. Length Converter
2. Weight Converter
3. Temperature Converter
4. Exit
Choose an option (1-4): 1

--- Length Converter ---
Enter length: 67
Is this in (m)eters or (km)? km
67.0 kilometers = 67000.00 meters

----- UNIT CONVERTER MENU -----
1. Length Converter
2. Weight Converter
3. Temperature Converter
4. Exit
Choose an option (1-4): 2

--- Weight Converter ---
Enter weight: 34
Is this in (kg) or (lb)? kg
34.0 kg = 74.96 pounds

----- UNIT CONVERTER MENU -----
1. Length Converter
2. Weight Converter
3. Temperature Converter
4. Exit
Choose an option (1-4): 4
Exiting program. Goodbye!
```

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