



Homework # 3

**01286121 Computer Programming
Software Engineering Program,
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By

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```

1 ] def input_str(prompt): #ensure input is string

    while True:

        user_input = input(prompt)

        if user_input: #check input is non-empty
            return user_input

        else:

            print("Invalid Please input a string.")

def input_pos(prompt): #positive number input function

    while True:

        try:

            value = float(input(prompt)) #try value into float type

            if value >= 0:

                return value

            #check if value isnt negative

        else :

            print("Invalid value")

    except ValueError: #incase its not number

        print("Error. Input Number")

name = input_str("Please enter Employee's name : ")
work_hour = input_pos("Please enter worked hour in a week : ")
pay_rate = input_pos("Please enter Hourly pay rate : ")
federal_tax = input_pos("Please enter Federal tax withholding rate : ")
stats_tax = input_pos("Please enter State tax withholding rate : ")

print("")

#Calculations

gross_pay = work_hour * pay_rate

f_hold = gross_pay * federal_tax

s_hold = gross_pay * stats_tax

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```
total = f_hold + s_hold
```

```
net_pay = gross_pay - total
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```
print("\nEmployee Name : ", name)
```

```
print("Hour Worked : ", work_hour)
```

```
print("Pay Rate : ${:.2f}".format(pay_rate))
```

```
print("Gross Pay : ${:.2f}".format(gross_pay))
```

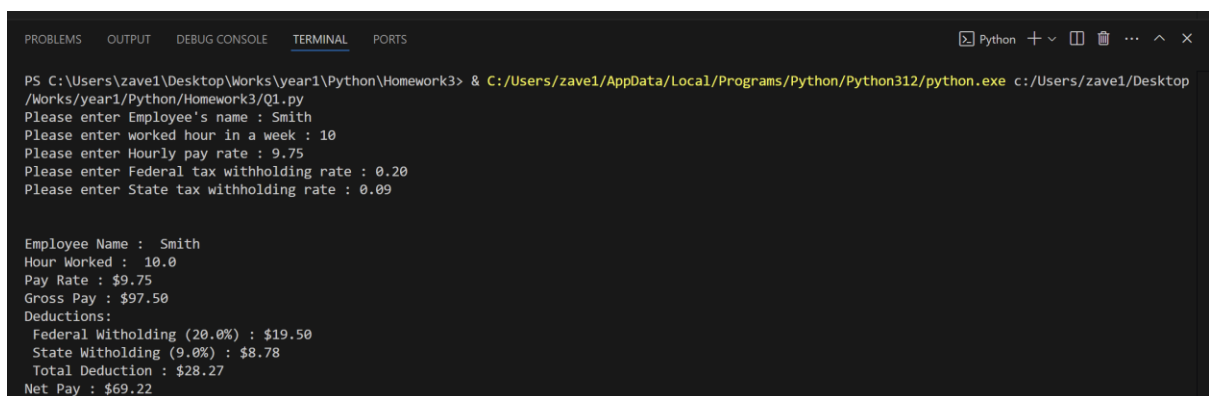
```
print("Deductions: ")
```

```
print(" Federal Withholding ({:.1%}) : ${:.2f}".format(federal_tax, f_hold))
```

```
print(" State Withholding ({:.1%}) : ${:.2f}".format(stats_tax, s_hold))
```

```
print(" Total Deduction : ${:.2f}".format(total))
```

```
print("Net Pay : ${:.2f}".format(net_pay))
```



The screenshot shows a Windows-style application window titled "Python" with standard window controls. The window contains a terminal interface with a dark background and light-colored text. At the top, there are tabs for "PROBLEMS", "OUTPUT", "DEBUG CONSOLE", "TERMINAL" (which is active), and "PORTS". The terminal displays the command prompt and the execution of a Python script. It prompts the user for employee details: name, hours worked, pay rate, federal tax rate, and state tax rate. The user's inputs are shown. The program then outputs the calculated values: Employee Name, Hour Worked, Pay Rate, Gross Pay, and a breakdown of deductions (Federal and State) leading to the Total Deduction and Net Pay.

```
PS C:\Users\zave1\Desktop\Works\year1\Python\Homework3> & C:/Users/zave1/AppData/Local/Programs/Python/Python312/python.exe c:/Users/zave1/Desktop/Works/year1/Python/Homework3/Q1.py
Please enter Employee's name : Smith
Please enter worked hour in a week : 10
Please enter Hourly pay rate : 9.75
Please enter Federal tax withholding rate : 0.20
Please enter State tax withholding rate : 0.09

Employee Name : Smith
Hour Worked : 10.0
Pay Rate : $9.75
Gross Pay : $97.50
Deductions:
  Federal Withholding (20.0%) : $19.50
  State Withholding (9.0%) : $8.78
Total Deduction : $28.27
Net Pay : $69.22
```

```

2 ] def input_fourdigit(prompt): #function check input

while True:

    try:

        user_input = input(prompt) #input as string so we can reverse it

        if user_input.isdigit() and len(user_input) == 4 : #check if it's digit and 4 numbers or not

            return user_input

        else:

            print("Please input 4 digits numbers.")

    except ValueError:

        print("Please input 4 digits numbers")

num = input_fourdigit("Enter 4 digits numbers : ")

reverse_num = num[::-1] #reversed the value

print("Reversed number = ",reverse_num)

```

```

PS C:\Users\zave1\Desktop\Works\year1\Python\Homework3> & C:/Users/zave1/AppData/Local/Programs/Python/Python312/python.exe c:/Users/zave1/Desktop/Works/year1/Python/Homework3/Q2.py
Enter 4 digits numbers : 1234
Reversed number = 4321
PS C:\Users\zave1\Desktop\Works\year1\Python\Homework3>

```

```
3] import turtle as tt
```

```
def draw_star(length):
```

```
    star = tt.Turtle()
```

```
    for _ in range(5):
```

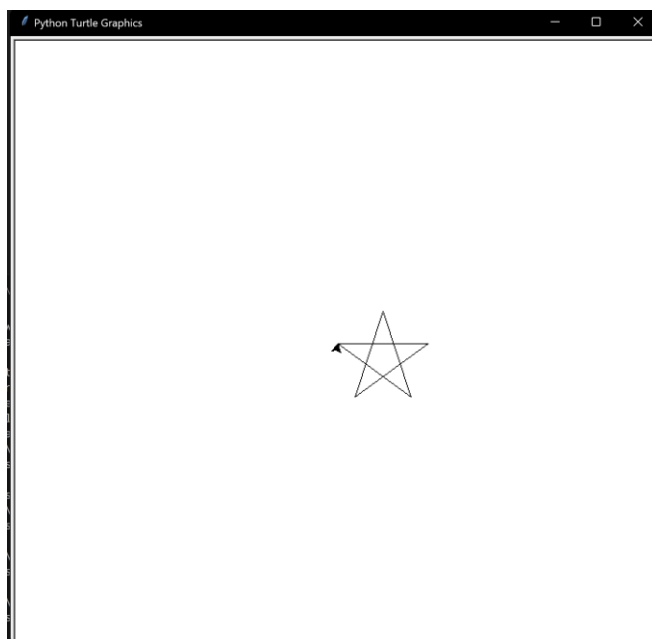
```
        star.forward(length)
```

```
        star.right(144)
```

```
length = float(input("Enter the length of star : "))
```

```
draw_star(length)
```

```
tt.done
```



```
PS C:\Users\zave1\Desktop\Works\year1\Python\Homework3> & C:/Users/zave1/AppData/Local/Programs/Python/Python312/python.exe c:/Users/zave1/Desktop/Works/year1/Python/Homework3/Q3.py
Enter the length of star : 100
```

4] import turtle as tt

def draw_ring(radius):

color = ["blue", "black", "red", "yellow", "green"]

position = [(-120, 0), (0, 0), (120, 0), (-60, -60), (60, -60)]

for color, position in zip(color, position):

tt.pensize(5)

tt.penup()

tt.goto(position)

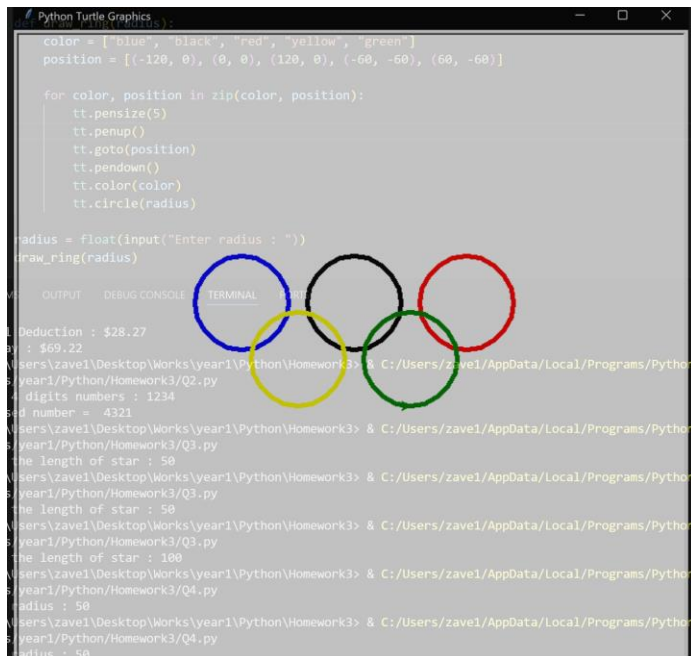
tt.pendown()

tt.color(color)

tt.circle(radius)

radius = float(input("Enter radius : "))

draw_ring(radius)



```
Python Turtle Graphics
color = ["blue", "black", "red", "yellow", "green"]
position = [(-120, 0), (0, 0), (120, 0), (-60, -60), (60, -60)]

for color, position in zip(color, position):
    tt.pensize(5)
    tt.penup()
    tt.goto(position)
    tt.pendown()
    tt.color(color)
    tt.circle(radius)

radius = float(input("Enter radius : "))
draw_ring(radius)

Deduction : $28.27
: $69.22
Users\zave1\Desktop\Works\year1\Python\Homework3> & C:/Users/zave1/AppData/Local/Programs/Python/
year1/Python/Homework3/Q2.py
digits numbers : 1234
and number = 4321
Users\zave1\Desktop\Works\year1\Python\Homework3> & C:/Users/zave1/AppData/Local/Programs/Python/
year1/Python/Homework3/Q3.py
the length of star : 50
Users\zave1\Desktop\Works\year1\Python\Homework3> & C:/Users/zave1/AppData/Local/Programs/Python/
year1/Python/Homework3/Q3.py
the length of star : 50
Users\zave1\Desktop\Works\year1\Python\Homework3> & C:/Users/zave1/AppData/Local/Programs/Python/
year1/Python/Homework3/Q3.py
the length of star : 100
Users\zave1\Desktop\Works\year1\Python\Homework3> & C:/Users/zave1/AppData/Local/Programs/Python/
year1/Python/Homework3/Q4.py
radius : 50
Users\zave1\Desktop\Works\year1\Python\Homework3> & C:/Users/zave1/AppData/Local/Programs/Python/
year1/Python/Homework3/Q4.py
radius : 50
```

```
PS C:\Users\zave1\Desktop\Works\year1\Python\Homework3> &
/Works/year1/Python/Homework3/Q4.py
Enter radius : 50
```

```
5] import math
```

```
#input
```

```
x1 = int(input("Please input x1 : "))
```

```
y1 = int(input("Please input y1 : "))
```

```
x2 = int(input("Please input x2 : "))
```

```
y2 = int(input("Please input y2 : "))
```

```
x3 = int(input("Please input x3 : "))
```

```
y3 = int(input("Please input y3 : "))
```

```
#triangle formula
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area = abs((x1*(y2 - y3) + x2*(y3 - y1) + x3*(y1 - y2) / 2.0))
```

```
#Output
```

```
print("The area of triangle is : ", area)
```

```
PS C:\Users\zave1\Desktop\Works\y
/Works/year1/Python/Homework3/Q5.
Please input x1 : 10
Please input y1 : 20
Please input x2 : 20
Please input y2 : 30
Please input x3 : 25
Please input y3 : 40
The area of triangle is : 175.0
```