ARTIFICIAL INTELLIGENCE LAB

BSCYS-3rd Semester

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Lab Report # 4

Submitted: To:Sir Mubashir Iqbal

Submited By: M.Umer

Reg No: (24-CyS-024)

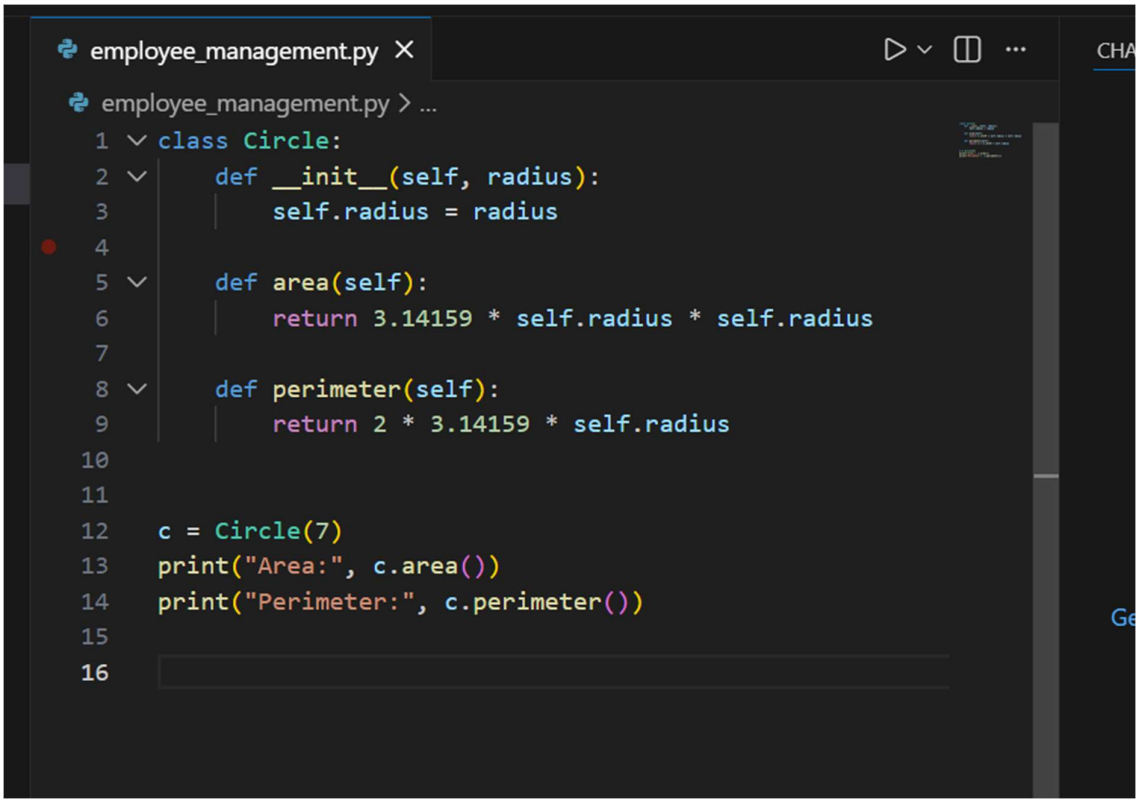
Department:Cyber Security (A)

DEPARTMENT OF COMPUTER SCIENCE HITEC UNIVERSITY TAXILA

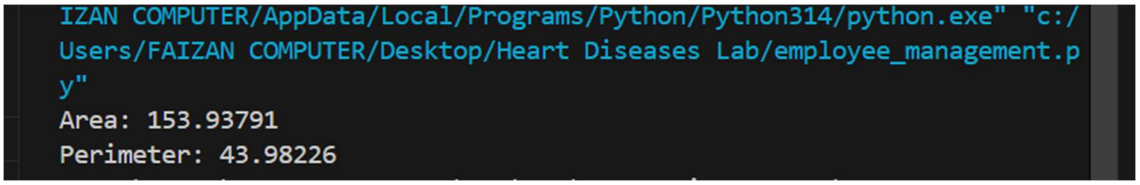
BS CYBER SECURITY PROGRAM

Task 1: Circle Class (Area & Perimeter)

Code:

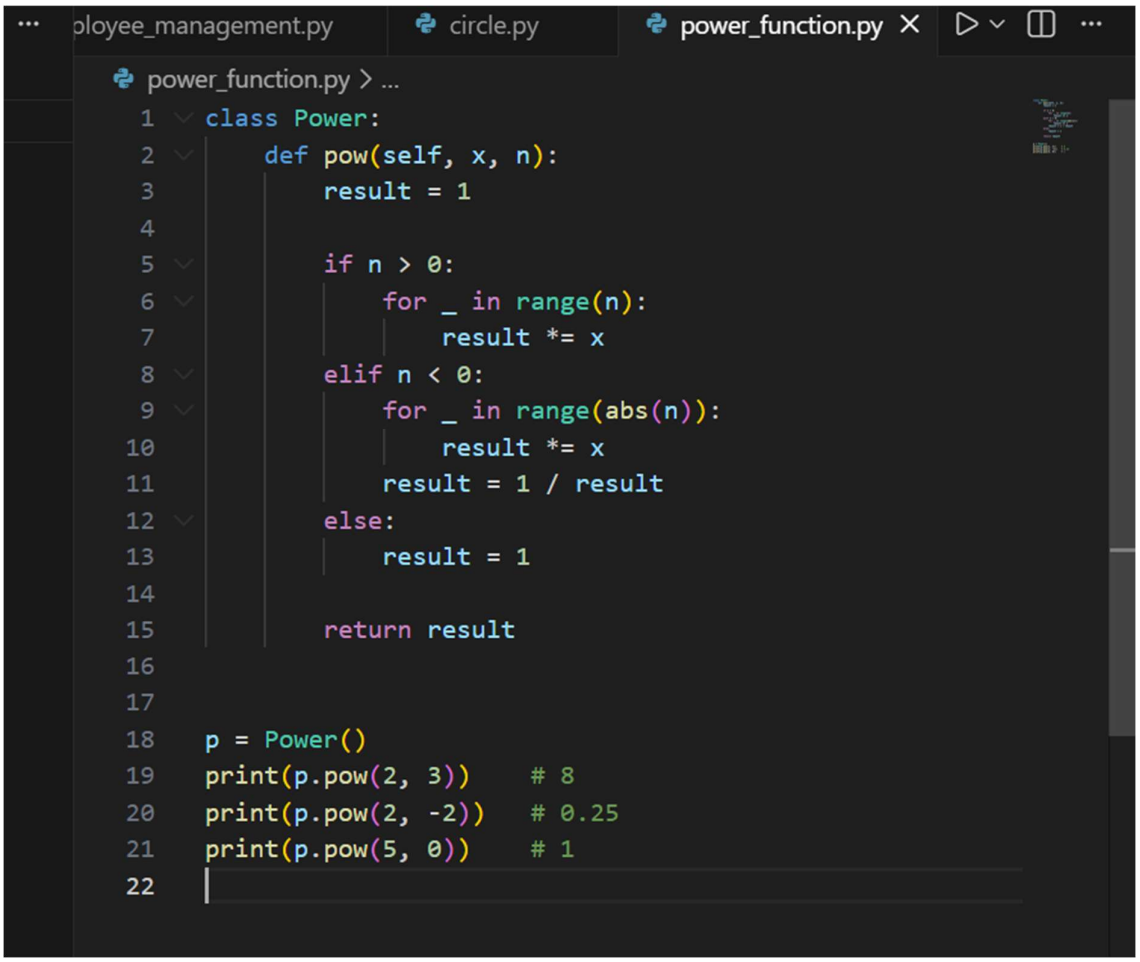


Output:



Task 2: Implement pow(x, n) (No built-in function)

Code:



Output:

```
PS C:\Users\FAIZAN COMPUTER\Desktop\Heart Diseases Lab> & "C:/Users/FA
IZAN COMPUTER/AppData/Local/Programs/Python/Python314/python.exe" "c:/
Users/FAIZAN COMPUTER/Desktop/Heart Diseases Lab/power_function.py"
8
0.25
1
PS C:\Users\FAIZAN COMPUTER\Desktop\Heart Diseases Lab>
```

Task 3:

Code:

item_inheritance.py > ...

```python
class Item:
    def __init__(self, name, description, price):
        self.name = name
        self.description = description
        self.price = price

    def viewFullDescription(self):
        print("Name:", self.name)
        print("Description:", self.description)
        print("Price:", self.price)

    def addToShoppingBasket(self):
        print(self.name, "added to shopping basket")

    def removeFromShoppingBasket(self):
        print(self.name, "removed from shopping basket"


class MP3(Item):
    def __init__(self, name, description, price, artist
        super().__init__(name, description, price)
        self.artist = artist
        self.duration = duration

    def play(self):
        print("Playing MP3")

    def download(self):
        print("Downloading MP3")

```

```
class DVD(Item):
    def __init__(self, name, description, price, certif
        super().__init__(name, description, price)
        self.certificate = certificate
        self.duration = duration
        self.actors = actors

    def viewTrailer(self):
        print("Viewing DVD trailer")


class Book(Item):
    def __init__(self, name, description, price, author
        super().__init__(name, description, price)
        self.author = author
        self.numberOfPages = numberOfPages
        self.genre = genre

    def previewContent(self):
        print("Previewing book content")


mp3 = MP3("Song", "Pop Song", 300, "Atif", "4 min")
dvd = DVD("Movie", "Action Movie", 1500, "PG-13", "2 hr
book = Book("Python", "Programming Book", 1200, "John",

mp3.viewFullDescription()
mp3.play()

dvd.viewFullDescription()
```

```
56  book = Book("Python", "Programming Book", 1200, "John",
57
58  mp3.viewFullDescription()
59  mp3.play()
60
61  dvd.viewFullDescription()
62  dvd.viewTrailer()
63
64  book.viewFullDescription()
65  book.previewContent()
66
```

Output:

```
PS C:\Users\FAIZAN COMPUTER\Desktop\Heart Diseases Lab> & "C:/Users/FA
IZAN COMPUTER/AppData/Local/Programs/Python/Python314/python.exe" "c:/
Users/FAIZAN COMPUTER/Desktop/Heart Diseases Lab/item_inheritance.py"
Name: Song
Description: Pop Song
Price: 300
Playing MP3
Name: Movie
Description: Action Movie
Price: 1500
Viewing DVD trailer
Name: Python
Description: Programming Book
Price: 1200
Previewing book content
PS C:\Users\FAIZAN COMPUTER\Desktop\Heart Diseases Lab>
```

Conclusion:

In this lab, we learned how Object-Oriented Programming works in Python by doing different practical tasks. We created classes and objects to represent real-life things like employees, circles, and shopping items. We also learned how constructors are used to initialize data and how inheritance helps in reusing code by creating child classes from parent classes. The power function task helped us understand logic building without using built-in functions. Overall, these tasks improved our understanding of OOP concepts such as classes, objects, inheritance, and code reusability in a simple and practical way.