

ASSIGNMENT-2

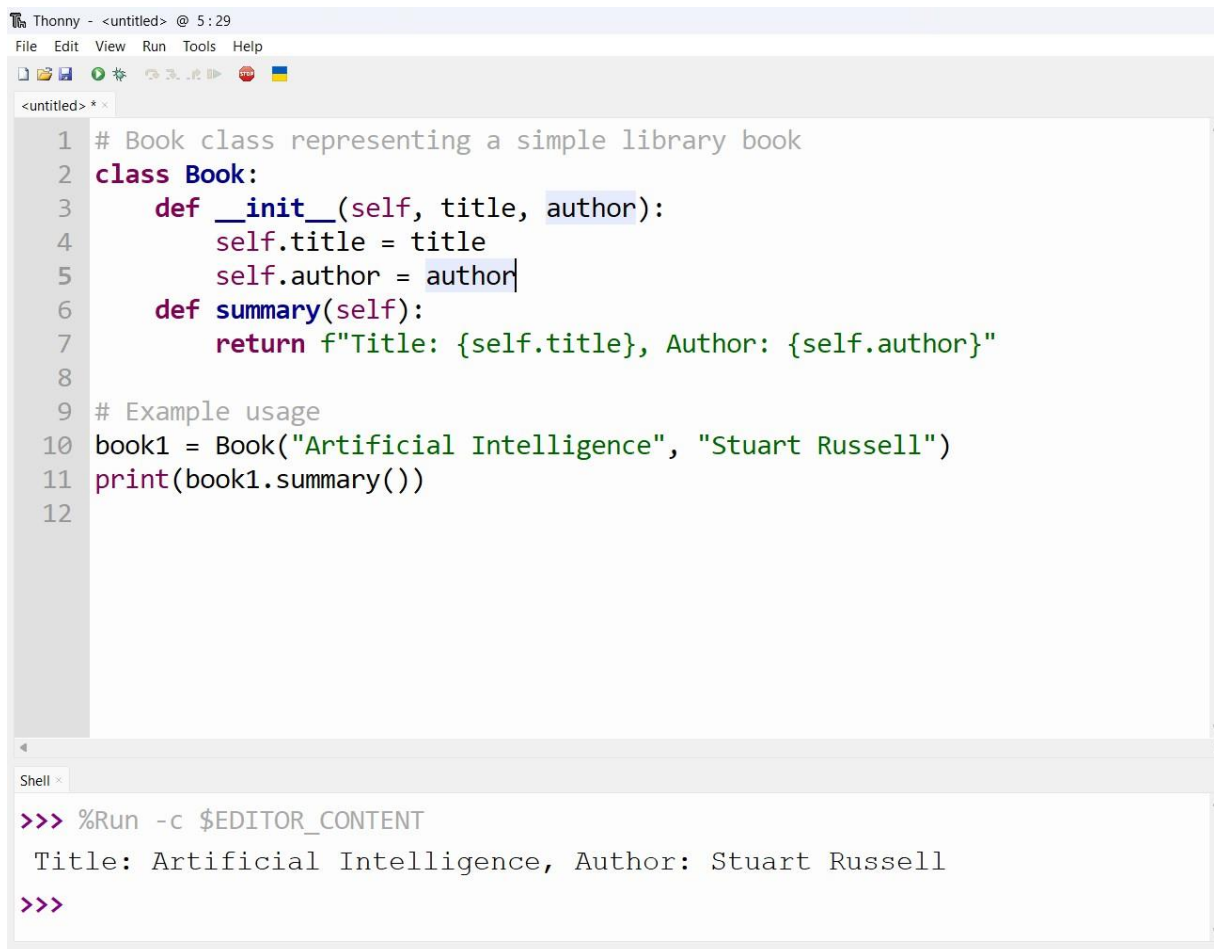
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BATCH-16

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Task1:BookClassGeneration(UsingCursorAI) Python

Code: Book Class



The screenshot shows the Thonny Python IDE interface. The top menu bar includes File, Edit, View, Run, Tools, and Help. Below the menu is a toolbar with icons for file operations and running code. The main editor window, titled '<untitled> * x', contains the following Python code:

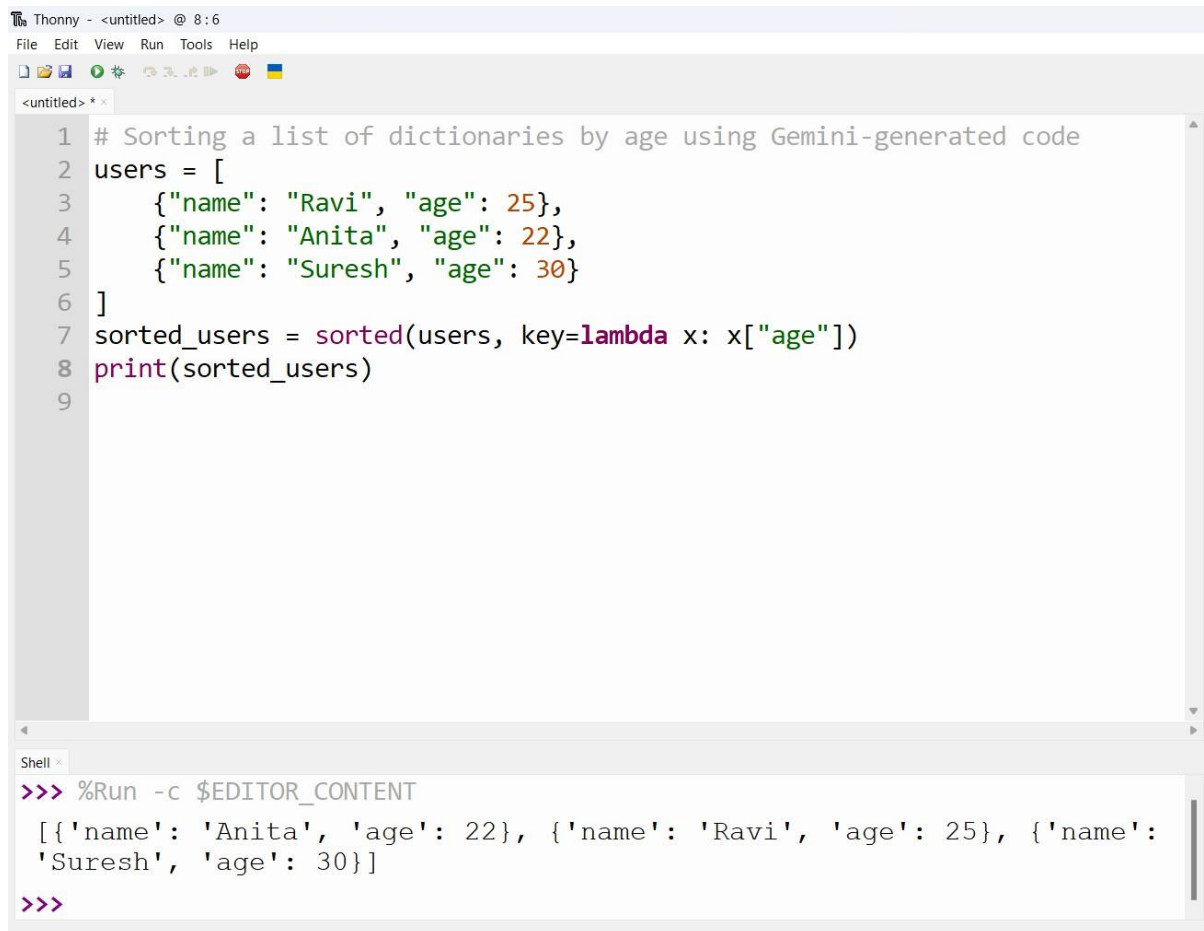
```
1 # Book class representing a simple library book
2 class Book:
3     def __init__(self, title, author):
4         self.title = title
5         self.author = author
6     def summary(self):
7         return f"Title: {self.title}, Author: {self.author}"
8
9 # Example usage
10 book1 = Book("Artificial Intelligence", "Stuart Russell")
11 print(book1.summary())
12
```

Below the editor is a shell window titled 'Shell x' which shows the execution output:

```
>>> %Run -c $EDITOR_CONTENT
Title: Artificial Intelligence, Author: Stuart Russell
>>>
```

Task2:SortingDictionarieswithAI

◆ UsingGoogleGemini

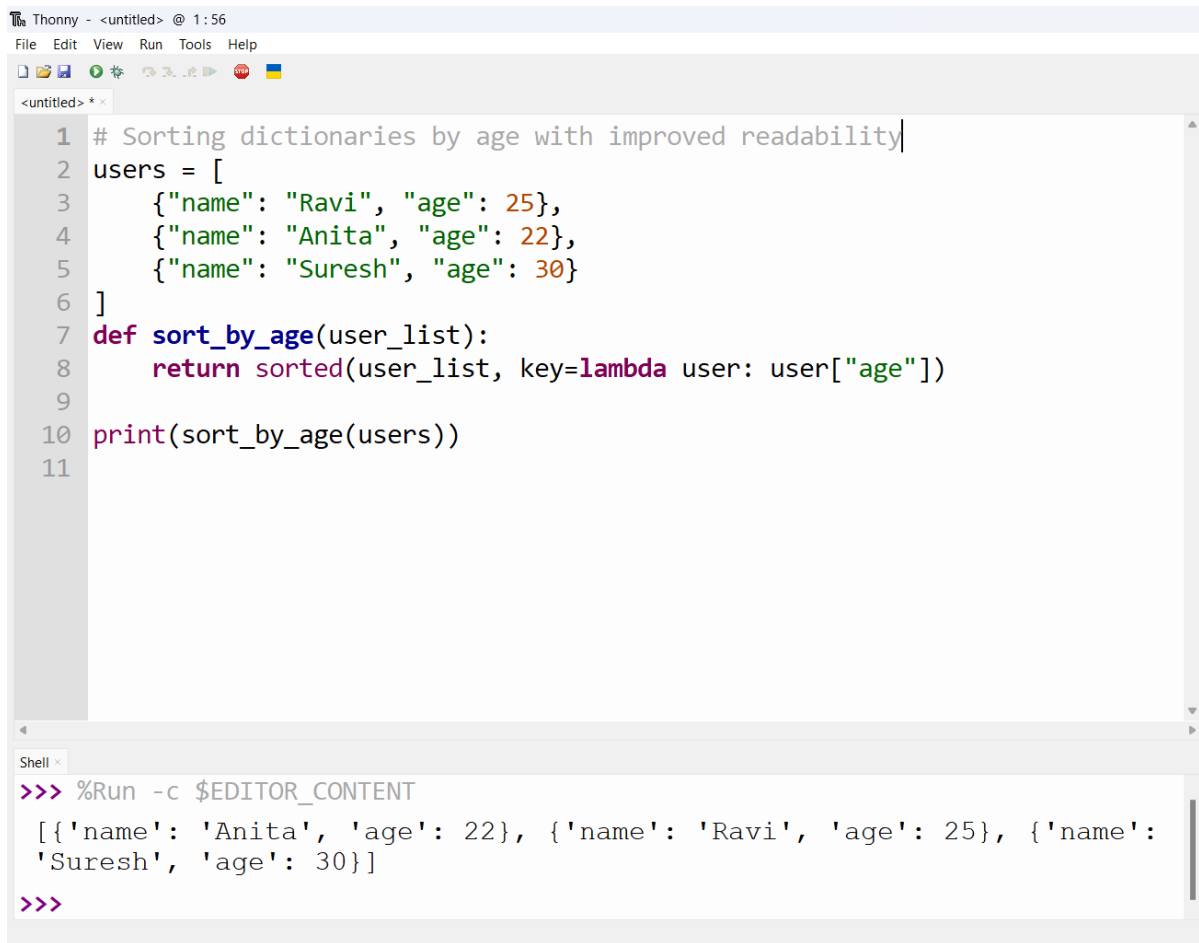


The image shows a screenshot of the Thonny IDE interface. The top window, titled "<untitled> @ 8:6", contains a Python script. The script defines a list of dictionaries representing users, sorts them by age using the `sorted()` function with a lambda key, and prints the result. The bottom window, titled "Shell", shows the output of the script after running, displaying the sorted list of users.

```
1 # Sorting a list of dictionaries by age using Gemini-generated code
2 users = [
3     {"name": "Ravi", "age": 25},
4     {"name": "Anita", "age": 22},
5     {"name": "Suresh", "age": 30}
6 ]
7 sorted_users = sorted(users, key=lambda x: x["age"])
8 print(sorted_users)
9
```

```
>>> %Run -c $EDITOR_CONTENT
[{'name': 'Anita', 'age': 22}, {'name': 'Ravi', 'age': 25}, {'name': 'Suresh', 'age': 30}]
>>>
```

UsingCursor AI



```
Thonny - <untitled> @ 1:56
File Edit View Run Tools Help

1 # Sorting dictionaries by age with improved readability
2 users = [
3     {"name": "Ravi", "age": 25},
4     {"name": "Anita", "age": 22},
5     {"name": "Suresh", "age": 30}
6 ]
7 def sort_by_age(user_list):
8     return sorted(user_list, key=lambda user: user["age"])
9
10 print(sort_by_age(users))
11

Shell x
>>> %Run -c $EDITOR_CONTENT
[{'name': 'Anita', 'age': 22}, {'name': 'Ravi', 'age': 25}, {'name': 'Suresh', 'age': 30}]
>>>
```

Comparison(ShortNote):

The solution generated by Gemini is short and direct, making it quick to understand for simple tasks. CursorAI, on the other hand, focused more on clean structure by using a function, which improves readability and makes the code reusable. While both approaches have similar performance, the CursorAI version is more suitable for larger projects where maintainability and clarity are important.

Task3: Calculator Using Functions (Gemini) Calculator

Code

```
Thonny - <untitled> @ 14:40
File Edit View Run Tools Help

<untitled> * x
1 # Basic calculator using functions
2 def add(a, b):
3     return a + b
4 def subtract(a, b):
5     return a - b
6 def multiply(a, b):
7     return a * b
8 def divide(a, b):
9     if b == 0:
10        return "Division by zero is not allowed"
11    return a / b
12 # Example usage
13 x = int(input("Enter first number: "))
14 y = int(input("Enter second number: "))
15 print("Addition:", add(x, y))
16 print("Subtraction:", subtract(x, y))
17 print("Multiplication:", multiply(x, y))
18 print("Division:", divide(x, y))
19

Shell x
>>> %Run -c $EDITOR_CONTENT
Enter first number: 5
Enter second number: 18
Addition: 23
Subtraction: -13
Multiplication: 90
Division: 0.2777777777777778
```

Task4:ArmstrongNumberOptimization

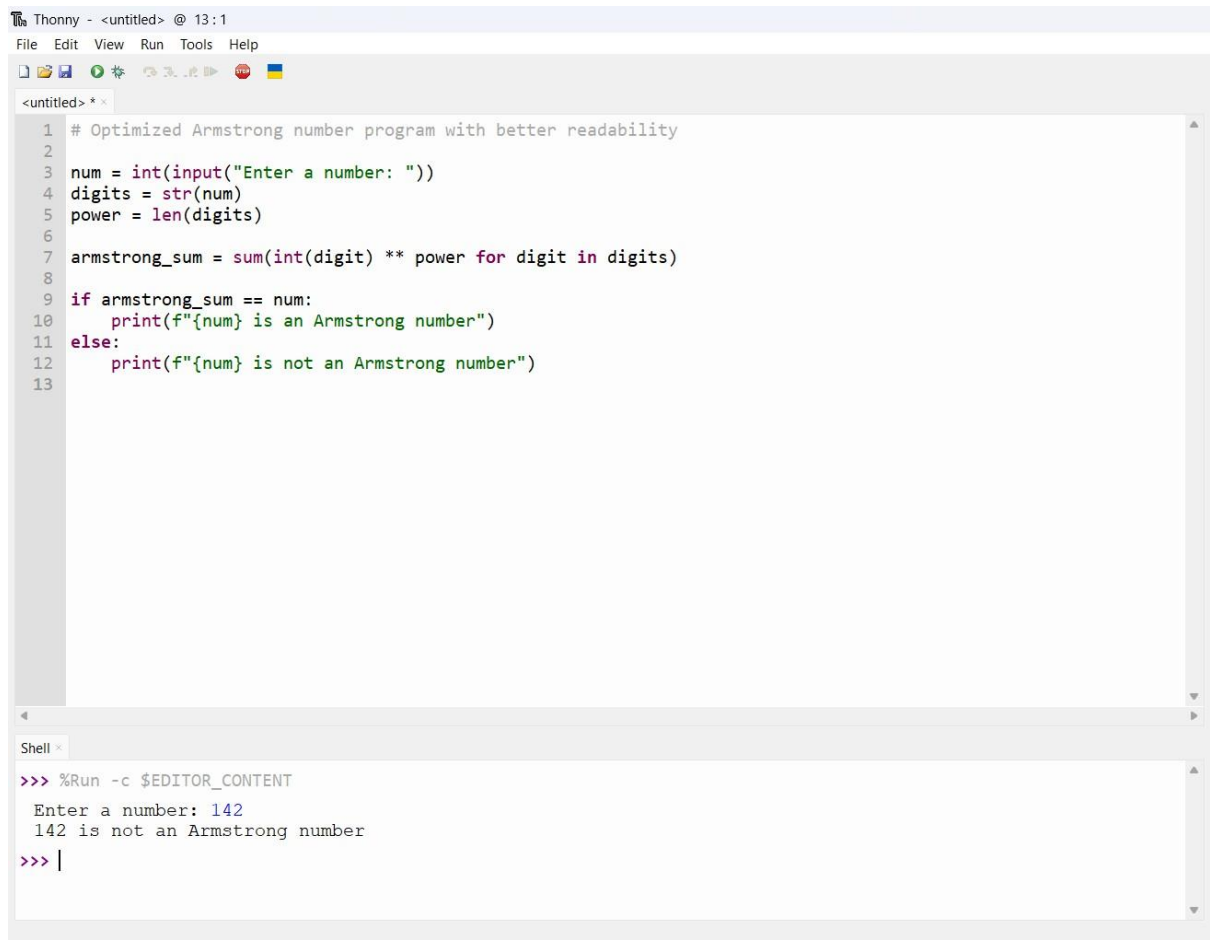
◆ Version1:Gemini-GeneratedArmstrongProgram

```
Thonny - <untitled> @ 16:1
File Edit View Run Tools Help

<untitled> * x
1 # Armstrong number check (basic version)
2
3 num = int(input("Enter a number: "))
4 temp = num
5 sum = 0
6
7 while temp > 0:
8     digit = temp % 10
9     sum += digit ** 3
10    temp //= 10
11
12 if sum == num:
13     print(num, "is an Armstrong number")
14 else:
15     print(num, "is not an Armstrong number")
16

Shell x
>>> %Run -c $EDITOR_CONTENT
Enter a number: 153
153 is an Armstrong number
>>> |
```

Version2:OptimizedUsingCursorAI



Thonny - <untitled> @ 13:1

File Edit View Run Tools Help

<untitled> * x

```
1 # Optimized Armstrong number program with better readability
2
3 num = int(input("Enter a number: "))
4 digits = str(num)
5 power = len(digits)
6
7 armstrong_sum = sum(int(digit) ** power for digit in digits)
8
9 if armstrong_sum == num:
10     print(f"{num} is an Armstrong number")
11 else:
12     print(f"{num} is not an Armstrong number")
13
```

Shell x

```
>>> %Run -c $EDITOR_CONTENT
Enter a number: 142
142 is not an Armstrong number
>>> |
```

Summary of Improvements:

- Reduced lines of code
- Removed unnecessary variables
- Improved readability using Python built-in functions
- Works for Armstrong numbers of any length