Python Programming Solutions

Question 1: Assign Grades Based on Scores

Question: Assign different grades to students based on their scores.

Explanation:

- If a student scores above 90, assign grade A.
- If a student scores above 75, assign grade B.
- If a student scores above 65, assign grade C.

Python Code:

```python
def assign_grade(score):
    if score > 90:
        return "A"
    elif score > 75:
        return "B"
    elif score > 65:
        return "C"
    else:
        return "F"

# Example usage
score = 85
grade = assign_grade(score)
print(f"The grade for a score of {score} is {grade}.")
```

Question 2: String Slicing

Question: Write a code in Python to do slice [2:5] for the string "THISISWORLDBESTPRATICE".

Explanation:

- Use Python's slicing feature to extract a substring from index 2 to 5.

Python Code:

```
text = "THISISWORLDBESTPRATICE"
sliced_text = text[2:5]
print(f"The sliced text is: {sliced_text}")
```

Question 3: File Operations

Question: Perform file operations: Read file content and write into the file.

Explanation:

- Open a file in read mode to read its content.
- Open a file in write mode to write new content.

Python Code:

```
# Reading file content
with open("example.txt", "r") as file:
    content = file.read()
    print("File content:", content)

# Writing into the file
with open("example.txt", "w") as file:
    file.write("New content")
```

Question 4: Python Class with Two Data Members

Question: Develop a code in Python with a single class that has two data members.

Explanation:

- Define a class with an initializer to set two data members.

Python Code:

```
class ExampleClass:
    def __init__(self, member1, member2):
        self.member1 = member1
        self.member2 = member2

# Example usage
example = ExampleClass("Value1", "Value2")
```

```
print(f"Member 1: {example.member1}, Member 2: {example.
    member2}")
```

Question 5: Draw a Line in a Diagram

Question: Draw a line in a diagram from position (1, 3) to position (8, 10).

Explanation:

- Use a plotting library like Matplotlib to draw a line between two points.

Python Code:

```
import matplotlib.pyplot as plt

# Define the points
x_values = [1, 8]
y_values = [3, 10]

# Plot the line
plt.plot(x_values, y_values, marker='o')
plt.title('Line from (1, 3) to (8, 10)')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.grid(True)
plt.show()
```

Question 6: Print Multiplication Table

Question: Develop a code in Python using a for loop to print the 5th multiplication table.

Explanation:

- Use a for loop to iterate through numbers 1 to 10 and print the multiplication results.

Python Code:

```
number = 5
print(f"Multiplication table for {number}:")
for i in range(1, 11):
    print(f"{number} x {i} = {number * i}")
```

Question 7: String Slicing

Question: Write a code in Python to do slice [4:12] for the string "THISISWORLDBESTPRATICE".

Explanation:

- Use Python's slicing feature to extract a substring from index 4 to 12.

Python Code:

```
text = "THISISWORLDBESTPRATICE"
sliced_text = text[4:12]
print(f"The sliced text is: {sliced_text}")
```

Question 8: File Operations

Question: Perform file operations: Read file content and write into the file.

Explanation:

- Open a file in read mode to read its content.
- Open a file in write mode to write new content.

Python Code:

```
# Reading file content
with open("example.txt", "r") as file:
    content = file.read()
    print("File content:", content)

# Writing into the file
with open("example.txt", "w") as file:
    file.write("New content")
```

Question 9: Python Class with Two Data Members

Question: Develop a code in Python with a single class that has two data members.

Explanation:

- Define a class with an initializer to set two data members.

Python Code:

```python
class ExampleClass:
    def __init__(self, member1, member2):
        self.member1 = member1
        self.member2 = member2

# Example usage
example = ExampleClass("Value1", "Value2")
print(f"Member 1: {example.member1}, Member 2: {example.
    member2}")
```

Question 10: Draw a Line in a Diagram

Question: Draw a line in a diagram from position (1, 3) to position (8, 10).

Explanation:

- Use a plotting library like Matplotlib to draw a line between two points.

Python Code:

```python
import matplotlib.pyplot as plt

# Define the points
x_values = [1, 8]
y_values = [3, 10]

# Plot the line
plt.plot(x_values, y_values, marker='o')
plt.title('Line from (1, 3) to (8, 10)')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.grid(True)
plt.show()
```

Question 11: Print Multiplication Table

Question: Develop a code in Python using a for loop to print the 9th multiplication table.

Explanation:

- Use a for loop to iterate through numbers 1 to 10 and print the multiplication results.

Python Code:

```python
number = 9
print(f"Multiplication table for {number}:")
for i in range(1, 11):
    print(f"{number} x {i} = {number * i}")
```

Question 12: String Slicing

Question: Write a code in Python to do slice [-2:-12] for the string "THISISWORLDBESTPRATICE".

Explanation:

- Use Python's slicing feature to extract a substring from index -2 to -12.

Python Code:

```python
text = "THISISWORLDBESTPRATICE"
sliced_text = text[-2:-12]
print(f"The sliced text is: {sliced_text}")
```

Question 13: File Operations

Question: Perform file operations: Read file content and write into the file.

Explanation:

- Open a file in read mode to read its content.
- Open a file in write mode to write new content.

Python Code:

```python
# Reading file content
with open("example.txt", "r") as file:
    content = file.read()
    print("File content:", content)

# Writing into the file
with open("example.txt", "w") as file:
    file.write("New content")
```

Question 14: Python Class with Two Data Members

Question: Develop a code in Python with a single class that has two data members.

Explanation:

- Define a class with an initializer to set two data members.

Python Code:

```
class ExampleClass:
    def __init__(self, member1, member2):
        self.member1 = member1
        self.member2 = member2

# Example usage
example = ExampleClass("Value1", "Value2")
print(f"Member 1: {example.member1}, Member 2: {example.
    member2}")
```

Question 15: Draw a Line in a Diagram

Question: Draw a line in a diagram from position (1, 3) to position (8, 10).

Explanation:

- Use a plotting library like Matplotlib to draw a line between two points.

Python Code:

```
import matplotlib.pyplot as plt

# Define the points
x_values = [1, 8]
y_values = [3, 10]

# Plot the line
plt.plot(x_values, y_values, marker='o')
plt.title('Line from (1, 3) to (8, 10)')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.grid(True)
plt.show()
```

Question 16: Assign Grades Based on Scores

Question: Assign different grades to students based on their scores.

Explanation:

- If a student scores above 90, assign grade A.
- If a student scores above 75, assign grade B.
- If a student scores above 65, assign grade C.

Python Code:

```
def assign_grade(score):
    if score > 90:
        return "A"
    elif score > 75:
        return "B"
    elif score > 65:
        return "C"
    else:
        return "F"

# Example usage
score = 85
grade = assign_grade(score)
print(f"The grade for a score of {score} is {grade}.")
```

Question 17: String Slicing

Question: Write a code in Python to do slice [4:13] for the string "THISISWORLDBESTPRATICE".

Explanation:

- Use Python's slicing feature to extract a substring from index 4 to 13.

Python Code:

```
text = "THISISWORLDBESTPRATICE"
sliced_text = text[4:13]
print(f"The sliced text is: {sliced_text}")
```

Question 18: File Operations

Question: Perform file operations: Append file content and write into the file.

Explanation:

- Open a file in append mode to add new content.
- Open a file in write mode to write new content.

Python Code:

```
# Appending file content
with open("example.txt", "a") as file:
    file.write("\nAppended content")

# Writing into the file
with open("example.txt", "w") as file:
    file.write("New content")
```

Question 19: Python Class with Two Data Members

Question: Develop a code in Python with a single class that has two data members.

Explanation:

- Define a class with an initializer to set two data members.

Python Code:

```
class ExampleClass:
    def __init__(self, member1, member2):
        self.member1 = member1
        self.member2 = member2

# Example usage
example = ExampleClass("Value1", "Value2")
print(f"Member 1: {example.member1}, Member 2: {example.
    member2}")
```

Question 20: Draw a Line in a Diagram

Question: Draw a line in a diagram from position (11, 13) to position (-18, -10).

Explanation:

- Use a plotting library like Matplotlib to draw a line between two points.

Python Code:

```
import matplotlib.pyplot as plt

# Define the points
x_values = [11, -18]
y_values = [13, -10]

# Plot the line
plt.plot(x_values, y_values, marker='o')
plt.title('Line from (11, 13) to (-18, -10)')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.grid(True)
plt.show()
```

Question 21: Print Multiplication Table

Question: Develop a code in Python using a for loop to print the 9th multiplication table.

Explanation:

- Use a for loop to iterate through numbers 1 to 10 and print the multiplication results.

Python Code:

```
number = 9
print(f"Multiplication table for {number}:")
for i in range(1, 11):
    print(f"{number} x {i} = {number * i}")
```

Question 22: String Slicing

Question: Write a code in Python to do slice [-12: -2] for the string "THISISWORLDBESTPRATICE".

Explanation:

- Use Python's slicing feature to extract a substring from index -12 to -2.

Python Code:

```python
text = "THISISWORLDBESTPRATICE"
sliced_text = text[-12:-2]
print(f"The sliced text is: {sliced_text}")
```

Question 23: File Operations

Question: Perform file operations: Read file content and write into the file.

Explanation:

- Open a file in read mode to read its content.
- Open a file in write mode to write new content.

Python Code:

```python
# Reading file content
with open("example.txt", "r") as file:
    content = file.read()
    print("File content:", content)

# Writing into the file
with open("example.txt", "w") as file:
    file.write("New content")
```

Question 24: Python Class with Four Data Members

Question: Develop a code in Python with a single class that has four data members.

Explanation:

- Define a class with an initializer to set four data members.

Python Code:

```python
class ExampleClass:
    def __init__(self, member1, member2, member3, member4):
        self.member1 = member1
        self.member2 = member2
        self.member3 = member3
        self.member4 = member4

# Example usage
```

```
example = ExampleClass("Value1", "Value2", "Value3", "Value4
    ")
print(f"Member 1: {example.member1}, Member 2: {example.
    member2}, Member 3: {example.member3}, Member 4: {example
    .member4}")
```

Question 25: Square Root Calculation

Question: Find the square root of a user-defined number using the "math" library.

Explanation:

- Use the math.sqrt() function to calculate the square root of a number.

Python Code:

```
import math

# Input from user
number = float(input("Enter a number: "))
sqrt_result = math.sqrt(number)
print(f"The square root of {number} is {sqrt_result}.")
```

Question 26: Life Stage Classification

Question: Implement a program that categorizes users into different life stages based on their age.

Explanation:

- Use if, elif, and else statements to classify users based on their age.

Python Code:

```
def classify_age(age):
    if age < 13:
        return "Child"
    elif 13 <= age <= 19:
        return "Teenager"
    elif 20 <= age <= 64:
        return "Adult"
    else:
        return "Senior"

# Example usage
```

```
age = int(input("Enter your age: "))
life_stage = classify_age(age)
print(f"You are a {life_stage}.")
```

Question 27: Reverse a String

Question: Write a code in Python to reverse the string "THISISWORLDBEST-PRATICE" using slicing.

Explanation:

- Use Python's slicing feature to reverse the string.

Python Code:

```
text = "THISISWORLDBESTPRATICE"
reversed_text = text[::-1]
print(f"The reversed text is: {reversed_text}")
```

Question 28: File Operations

Question: Perform file operations: Read file content and write into the file.

Explanation:

- Open a file in read mode to read its content.
- Open a file in write mode to write new content.

Python Code:

```
# Reading file content
with open("example.txt", "r") as file:
    content = file.read()
    print("File content:", content)

# Writing into the file
with open("example.txt", "w") as file:
    file.write("New content")
```

Question 29: Python Class with Inheritance

Question: Develop a code in Python with a base class and a derived class that inherits from the base class.

Explanation:

- Define a base class with two data members.
- Define a derived class that inherits from the base class and prints the data members.

Python Code:

```
class BaseClass:
    def __init__(self, member1, member2):
        self.member1 = member1
        self.member2 = member2

class DerivedClass(BaseClass):
    def display_members(self):
        print(f"Member 1: {self.member1}, Member 2: {self.
            member2}")

# Example usage
derived = DerivedClass("Value1", "Value2")
derived.display_members()
```

Question 30: Draw a Line in a Diagram

Question: Draw a line in a diagram from position (2, 9) to position (18, 21).

Explanation:

- Use a plotting library like Matplotlib to draw a line between two points.

Python Code:

```
import matplotlib.pyplot as plt

# Define the points
x_values = [2, 18]
y_values = [9, 21]

# Plot the line
plt.plot(x_values, y_values, marker='o')
plt.title('Line from (2, 9) to (18, 21)')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.grid(True)
```

```
plt.show()
```

Question 31: Check Odd or Even

Question: Write a code in Python to check whether a given number is odd or even.

Explanation:

- Use the modulus operator to determine if a number is odd or even.

Python Code:

```
def check_odd_even(number):
    if number % 2 == 0:
        return "Even"
    else:
        return "Odd"

# Example usage
number = 7
result = check_odd_even(number)
print(f"The number {number} is {result}.")
```

Question 32: String Slicing

Question: Write a code in Python to do slice [2:5] for the string "THISISWORLDBESTPRATICE".

Explanation:

- Use Python's slicing feature to extract a substring from index 2 to 5.

Python Code:

```
text = "THISISWORLDBESTPRATICE"
sliced_text = text[2:5]
print(f"The sliced text is: {sliced_text}")
```

Question 33: File Operations

Question: Perform file operations: Read file content and write into the file.

Explanation:

- Open a file in read mode to read its content.
- Open a file in write mode to write new content.

Python Code:

```
# Reading file content
with open("example.txt", "r") as file:
    content = file.read()
    print("File content:", content)

# Writing into the file
with open("example.txt", "w") as file:
    file.write("New content")
```

Question 34: Python Class with Four Data Members

Question: Develop a code in Python with a single class that has four data members.

Explanation:

- Define a class with an initializer to set four data members.

Python Code:

```
class ExampleClass:
    def __init__(self, member1, member2, member3, member4):
        self.member1 = member1
        self.member2 = member2
        self.member3 = member3
        self.member4 = member4

# Example usage
example = ExampleClass("Value1", "Value2", "Value3", "Value4
    ")
print(f"Member 1: {example.member1}, Member 2: {example.
    member2}, Member 3: {example.member3}, Member 4: {example
    .member4}")
```