//Assignment 9

Title: Given: l A text string text of length n. l A pattern string pattern of length m. Objective: Find all starting indices i in the text such that the substring text[i:i+m] is exactly equal to the pattern pattern, using the Naive String Matching Algorithm approach. Constraints: l 0 ≤ m ≤ n l Characters in text and pattern can be any valid characters (e.g., a–z, A–Z, digits, etc.)

Menu-Driven Naive String Matching Algorithm

```python
def naive_string_match(text, pattern):

    n = len(text)

    m = len(pattern)

    positions = [ ]


    for i in range(n - m + 1):

        if text[i:i+m] == pattern:

            positions.append(i)

    return positions


def main():

    text = ""

    pattern = ""

    while True:

        print("\n===== Naive String Matching Menu =====")

        print("1. Enter Text String")

        print("2. Enter Pattern String")

        print("3. Search Pattern in Text")

        print("4. Exit")
```

```python
        choice = input("Enter your choice: ")
        if choice == "1":
            text = input("Enter the text string: ")
        elif choice == "2":
            pattern = input("Enter the pattern string: ")
        elif choice == "3":
            if len(pattern) > len(text):
                print("Error: Pattern length cannot be greater than text length.")
            elif text == "" or pattern == "":
                print("Please enter both text and pattern first.")
            else:
                matches = naive_string_match(text, pattern)
                if matches:
                    print(f"Pattern found at starting indices: {matches}")
                else:
                    print("No match found.")
        elif choice == "4":
            print("Exiting program...")
            break
        else:
            print("Invalid choice! Please try again.")
if __name__ == "__main__":
    main()
```

//OUTPUT

===== Naive String Matching Menu =====

1. Enter Text String

2. Enter Pattern String

3. Search Pattern in Text

4. Exit

Enter your choice: 1

Enter the text string: data structure and algorithm

===== Naive String Matching Menu =====

1. Enter Text String

2. Enter Pattern String

3. Search Pattern in Text

4. Exit

Enter your choice: 2

Enter the pattern string: algo

===== Naive String Matching Menu =====

1. Enter Text String

2. Enter Pattern String

3. Search Pattern in Text

4. Exit

Enter your choice: 3

Pattern found at starting indices: [19]

===== Naive String Matching Menu =====

1. Enter Text String

2. Enter Pattern String

3. Search Pattern in Text

4. Exit

Enter your choice: