**Task 2**

**Trie for Prefix Checking**

**Implement a trie data structure in C# that supports insertion of strings and provides a method to check if a given string is a prefix of any word in the trie.**

**ANS:**

```
package Day13;
import java.util.HashMap;
import java.util.Map;
class TrieNode {
  Map<Character, TrieNode> children;
  boolean isEndOfWord;
  public TrieNode() {
     children = new HashMap<>();
     isEndOfWord = false;
  }
}
class Trie {
  private TrieNode root;
  public Trie() {
     root = new TrieNode();
  }
  // Method to insert a word into the trie
  public void insert(String word) {
     TrieNode current = root;
     for (char c : word.toCharArray()) {
        current.children.putIfAbsent(c, new TrieNode());
        current = current.children.get(c);
     }
     current.isEndOfWord = true;
  }
  // Method to check if there is any word in the trie that starts with
the given prefix
  public boolean startsWith(String prefix) {
     TrieNode current = root;
     for (char c : prefix.toCharArray()) {
        current = current.children.get(c);
        if (current == null) {
           return false;
```

```
        }
      }
      return true;
    }
}
// Test the implementation
public class Task2 {
  public static void main(String[] args) {
      Trie trie = new Trie();
      trie.insert("apple");
      trie.insert("app");
      trie.insert("application");
      trie.insert("banana");
      System.out.println(trie.startsWith("app"));
      System.out.println(trie.startsWith("ban"));
      System.out.println(trie.startsWith("bat"));
      System.out.println(trie.startsWith("applepie"));
  }
}
```

OUTPUT:

```
true
true
false
false
```