using System;

class MyString : IComparable

{

private char[] chs;

public MyString(string s)

{

chs = s.ToCharArray(); // 临时使用string类的功能来初始化字符数组

}

public char this[int index]

{

get

{

if (index < 0 || index >= chs.Length)

{

throw new IndexOutOfRangeException();

}

return chs[index];

}

}

public int Length

{

get { return chs.Length; }

}

public MyString ToLower()

{

char[] lowerChars = new char[chs.Length];

for (int i = 0; i < chs.Length; i++)

{

lowerChars[i] = char.ToLower(chs[i]);

}

return new MyString(new string(lowerChars));

}

public int CompareTo(object obj)

{

if (obj == null) return 1;

MyString other = obj as MyString;

if (other == null)

{

throw new ArgumentException("Object is not a MyString");

}

int length = Math.Min(chs.Length, other.chs.Length);

for (int i = 0; i < length; i++)

{

if (chs[i] != other.chs[i])

{

return chs[i].CompareTo(other.chs[i]);

}

}

return chs.Length.CompareTo(other.chs.Length);

}

public MyString Substring(int index, int length)

{

if (index < 0 || index >= chs.Length)

{

throw new ArgumentOutOfRangeException(nameof(index));

}

if (length < 0 || index + length > chs.Length)

{

throw new ArgumentOutOfRangeException(nameof(length));

}

char[] substringChars = new char[length];

Array.Copy(chs, index, substringChars, 0, length);

return new MyString(new string(substringChars));

}

public static MyString operator +(MyString a, MyString b)

{

char[] combinedChars = new char[a.chs.Length + b.chs.Length];

Array.Copy(a.chs, 0, combinedChars, 0, a.chs.Length);

Array.Copy(b.chs, 0, combinedChars, a.chs.Length, b.chs.Length);

return new MyString(new string(combinedChars));

}

public override string ToString()

{

return new string(chs);

}

}

class Program

{

static void Main(string[] args)

{

MyString str1 = new MyString("Hello");

MyString str2 = new MyString("Hello world");

Console.WriteLine(str2.Length); // 输出：11

Console.WriteLine(str2[6]); // 输出：w

Console.WriteLine(str1.ToLower()); // 输出：hello

Console.WriteLine(str1.CompareTo(str2.Substring(0, 5))); // 输出：0

Console.WriteLine(str1.CompareTo(str2)); // 输出：-1

MyString str3 = str1 + new MyString(". Nice to meet you.");

Console.WriteLine(str1); // 输出：Hello

Console.WriteLine(str3); // 输出：Hello. Nice to meet you.

}

}