

**\*\*10.22** (Implement the **String** class) The **String** class is provided in the Java library. Provide your own implementation for the following methods (name the new class **MyString1**):

```
public MyString1(char[] chars);
public char charAt(int index);
public int length();
public MyString1 substring(int begin, int end);
public MyString1 toLowerCase();
public boolean equals(MyString1 s);
public static MyString1 valueOf(int i);
```

**\*\*10.23** (Implement the **String** class) The **String** class is provided in the Java library. Provide your own implementation for the following methods (name the new class **MyString2**):

```
public MyString2(String s);
public int compare(String s);
public MyString2 substring(int begin);
public MyString2 toUpperCase();
public char[] toChars();
public static MyString2 valueOf(boolean b);
```

**10.24** (Implement the **Character** class) The **Character** class is provided in the Java library. Provide your own implementation for this class. Name the new class **MyCharacter**.

**\*\*10.25** (New string **split** method) The **split** method in the **String** class returns an array of strings consisting of the substrings split by the delimiters. However, the delimiters are not returned. Implement the following new method that returns an array of strings consisting of the substrings split by the matching delimiters, including the matching delimiters.

```
public static String[] split(String s, String regex)
```

For example, **split("ab#12#453", "#")** returns **ab**, **#**, **12**, **#**, **453** in an array of **String**, and **split("a?b?gf#e", "[?#]")** returns **a**, **b**, **?**, **b**, **gf**, **#**, and **e** in an array of **String**.

**\*\*10.27** (Implement the **StringBuilder** class) The **StringBuilder** class is provided in the Java library. Provide your own implementation for the following methods (name the new class **MyStringBuilder1**):

```
public MyStringBuilder1(String s);
public MyStringBuilder1 append(MyStringBuilder1 s);
public MyStringBuilder1 append(int i);
public int length();
public char charAt(int index);
public MyStringBuilder1 toLowerCase();
public MyStringBuilder1 substring(int begin, int end);
public String toString();
```