

CSULB  
CECS277  
Postal Bar Code

For faster sorting of letters, the United States Postal Service encourages companies that send large volumes of mail to use a bar code denoting the zip code (see Figure1).

\*\*\*\*\* ECRL0T \*\* C057  
CODE C671RTS2  
JOHN DOE C057  
1009 FRANKLIN BLVD  
SUNNYVALE CA 95014  
|||

Figure 1. A postal Bar Code

The encoding scheme for a five-digit zip code is shown in figure 2. The five encoded digits are followed by a correction digit, which is computed as follows: Add up all the digits, and choose the correction digit to make the sum a multiple of 10. For example, the ZIP code 95014 has a sum of digits 19, so the correction digit is 1 to make the sum equal to 20

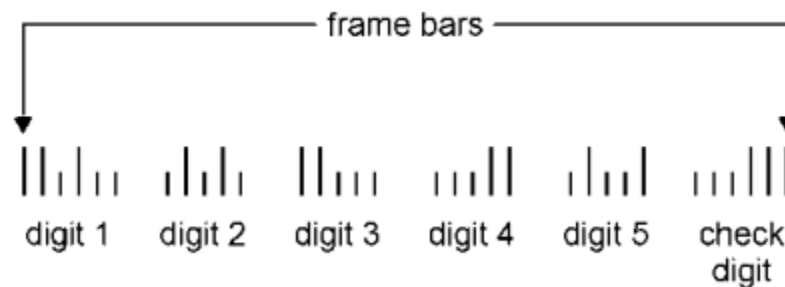


Figure 2. Encoding for Five-Digit Bar Codes

Each digit of the ZIP code, and the correction digit, is encoded according to the following table:

Digit	Bar1 (Weight 7)	Bar2 (Weight 4)	Bar3 (Weight 2)	Bar4 (Weight 1)	Bar5 (Weight 0)
1	0	0	0	1	1
2	0	0	1	0	1
3	0	0	1	1	0
4	0	1	0	0	1
5	0	1	0	1	0
6	0	1	1	0	0
7	1	0	0	0	1
8	1	0	0	1	0
9	1	0	1	0	0
0	1	1	0	0	0

The digit can be easily computed from the bar code using the column weights 7, 4, 2, 1, 0. For example, 01100 is  $0 \times 7 + 1 \times 4 + 1 \times 2 + 0 \times 1 + 0 \times 0 = 6$ .

The only exception is 0, which would yield 11 according to the weight formula.

Write a program that asks the user for a zip code and prints the bar code. Use : for half bars, | for full bars.

For example, 95014 becomes

||:|::|:|:|:|:|:|:|:|:|

Provide these methods:

```
public static void printDigit(int d)    //This method takes one integer digit only, and outputs its value in barcode
public static void printBarCode(int zipCode)    //This method takes the zipcode and prints the complete bar code
You can add other methods as needed
```

Write the method that reads in a bar code (with : denoting half bars and | denoting full bars) and prints out the zip code it represents. Print an error message if the bar code is not correct.

Write the code with a **menu** asking the user to select between reading the **bar code**, reading the **zip code** “be careful, the zipcode can not start with a zero”, or **exit the program**.

When the user selects one of the first two options the user should select between entering the bar/zip code (based on the selection from the previous menu) and using a **randomly generated one**.

The code should **repeat** until the **user selects to exit**.

Your code should **validate the user's entry** for the menu.

Upload your documented code to BeachBoard with sample runs, and demonstrate in class.

Print one page only –The other file

**It is important to have method calls in main, besides some important code lines.**