**Homework 1**

### **CMP 326: Programming Methods II**

Lehman College, City University of New York

Fall 2019

### [**Homework 1-1 Textbook Section 5.15**](https://learn.zybooks.com/zybook/CUNYCMP326Fall2019/chapter/5/section/15)

Write a Java program that uses an **int** variable **num** which starts at **1**.

Your program will have a loop that will continue as long as **num** is less than or equal to **30**. The loop will do the following

1. If **num** is odd, you should output: *num* is an odd number
2. If **num** is even, you should output: *num* is an even number
3. If **num** is divisible by 3, you should output: *num* is divisible by 3
4. If **num** is divisible by 5, you should output: *num* is divisible by 5
5. If **num** is divisible by 7, you should output: *num* is divisible by 7
6. If **num** is divisible by 9, you should output: *num* is divisible by 9
7. Increment **num**

Please note that your class should be named **FirstLoop**.

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[**Homework 1-2 Textbook Section 5.16**](https://learn.zybooks.com/zybook/CUNYCMP326Fall2019/chapter/5/section/16)

Write a program to read a list of exam grades given as **int**'s in the range of **0** to **100**. Your program will display the total number of grades and the number of grades in each letter-grade category as follows:

**A** 93 <= grade <= 100

**A-** 90 <= grade < 93

**B+** 87 <= grade < 90

**B** 83 <= grade < 87

**B-** 80 <= grade < 83

**C+** 77 <= grade < 80

**C** 73 <= grade < 77

**C-** 70 <= grade < 73

**D** 60 <= grade < 70

**F** 0 <= grade < 60

Use a negative number as a sentinel value to indicate the end of the input. (The negative value is used only to end the loop, do not use it in your calculations.)

Each time you prompt the user to enter a grade you will print:

Enter a grade:

For example, if the input is:

98 95 87 86 83 92 85 78 74 72 81 71 69 63 50 43 -1

The output would be:

Total number of grades = 16  
 Number of A's = 2  
 Number of A-'s = 1  
 Number of B+'s = 1  
 Number of B's = 3  
 Number of B-'s = 1  
 Number of C+'s = 1  
 Number of C's = 1  
 Number of C-'s = 2  
 Number of D's = 2  
 Number of F's = 2

Please note that your class should be named **Grades**.

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### [**Homework 1-3 Textbook Section 5.17**](https://learn.zybooks.com/zybook/CUNYCMP326Fall2019/chapter/5/section/17)

Write a Java program that prompts the user for an **int n**. You can assume that **1 ≤ n ≤ 9**. Your program should use embedded **for** loops that produce the following output:

1  
 2 1  
 3 2 1  
 4 3 2 1  
 5 4 3 2 1  
 .  
 .  
 .  
 n . . . 5 4 3 2 1

Your prompt to the user should be: **Please enter a number 1...9 :**

Please note that your class should be named **PatternTwo**.

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### [**Homework 1-4 Textbook Section 5.18**](https://learn.zybooks.com/zybook/CUNYCMP326Fall2019/chapter/5/section/18)

To make telephone numbers easier to remember, some companies use letters to show their telephone number. For example, using letters, the telephone number 438-5626 can be shown as GET LOAN.

In some cases, to make a telephone number meaningful, companies might use more than seven letters. For example 225-5466 can be displayed as CALL HOME, which uses eight letters.

Write a Java program that prompts the user to enter a telephone number expressed in letters and outputs the corresponding telephone number in digits. If the user enters more that seven letters (spaces do not count), then process only the first seven letters and ignore the rest. Your program should also output the - (hyphen) after the third digit.

**Allow the user to use uppercase and lowercase letters, as well as spaces between the words.**

**Hint1:** You can use the charAt method of the class String to extract each character. For example, if str refers to your String, then the expression str.charAt(i) returns the character at the ith position. Recall that in a String, the position of the first character is 0.

**Hint2:** You can use the toUpperCase or toLowerCase method of the class String to convert all chars in the String to upper or lower.

**Hint3:**

|  |  |
| --- | --- |
| **Number** | **Letter** |
| **0** | **none** |
| **1** | **none** |
| **2** | **ABC** |
| **3** | **DEF** |
| **4** | **GHI** |
| **5** | **JKL** |
| **6** | **MNO** |
| **7** | **PQRS** |
| **8** | **TUV** |
| **9** | **WXYZ** |

If the user enters: Get Loan

Your program will output: 438-5626

Or, if the user enters: cAll HoMe

Your program will output: 225-5466

Your prompt to the user should be:

Please enter a telephone number using letters :

Please note that your class should be named **TelephoneNumber**.

**This work must be completed in your textbook**  [**ZYBooks -- CMP-326: Programming Methods I**](https://learn.zybooks.com/zybook/CUNYCMP326Fall2019)**I**

**No other forms of submission will be accepted.**