Concordia University
Computer Science & Software Engineering
Faculty of Engineering and Computer Science

Concordia University
COMP 248 – Fall 2021
Assignment 3

Due Date:	By 11:59 PM, November 5th, 2021
Evaluation:	5% of final mark (see marking rubric at the end of handout)
Late Submission:	none accepted
Purpose:	The purpose of this assignment is to have you manipulate, nested loops and 1 and 2-dimensional arrays of strings
CEAB/CIPS ATTRIBUTES:	Design/Problem analysis/Communication Skills

Please note: *you are NOT allowed to post the assignment/solution anywhere on the Internet. Intellectual Property rights are reserved. If any similar cases are found via your account or IP, your submission will NOT be considered and will be reported immediately.*

General Guidelines When Writing Programs:

Refer to assignment#2 handout.

Question 1: Calendar Program

In this question, we will write a complete Java program to prompt the user for a leap or common year and display all the dates of the month are NOT the multiple of the month.

Your program must follow the following rules:

- Prompt the user to enter a valid year with 4 digits, which should not start with 0.
- Display all the dates that are not the multiple of the current month and 15 dates per line.
- You should use a nested loop to solve this question.
- Please note:
  - the dates of the February should depend on whether it is a leap year.
  - January, March, May, July, August, October, and December should have 31 days.
  - April, June, September, and November should have 30 days.
  - If no dates are found, your program should display "*No dates are found in this month!*"

Your program should work for any valid year that were entered. The following are sample screen shots to illustrate the expected behavior of your program. Your program must display the same information with the same format.

```
-------****-------****-------****-------****-----
      Welcome to Calendar Program!
-------****-------****-------****-------****-----

Please enter a 4-digit year:
209
Please enter a 4-digit year:
2009


In January, the dates are not multiple of 1 are:
No dates are found in this month!

In February in a common year, the dates are not multiple of 2 are:
1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27,

In March, the dates are not multiple of 3 are:
1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 17, 19, 20, 22,
23, 25, 26, 28, 29, 31,

In April, the dates are not multiple of 4 are:
1, 2, 3, 5, 6, 7, 9, 10, 11, 13, 14, 15, 17, 18, 19,
21, 22, 23, 25, 26, 27, 29, 30,

In May, the dates are not multiple of 5 are:
1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14, 16, 17, 18,
19, 21, 22, 23, 24, 26, 27, 28, 29, 31,

In June, the dates are not multiple of 6 are:
1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17,
19, 20, 21, 22, 23, 25, 26, 27, 28, 29,

In July, the dates are not multiple of 7 are:
1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17,
18, 19, 20, 22, 23, 24, 25, 26, 27, 29, 30, 31,

In August, the dates are not multiple of 8 are:
1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17,
18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31,

In September, the dates are not multiple of 9 are:
1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16,
17, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 30,

In October, the dates are not multiple of 10 are:
1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16,
17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31,

In November, the dates are not multiple of 11 are:
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16,
17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30,

In December, the dates are not multiple of 12 are:
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16,
17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31,

Thank you for using this program!!
```

Figure 1 Sample output of Question1

```
-------****-------****-------****-------****-----
      Welcome to Calendar Program!
-------****-------****-------****-------****-----

Please enter a 4-digit year:
2000


In January, the dates are not multiple of 1 are:
No dates are found in this month!

In February in a leap year, the dates are not multiple of 2 are:
1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29,

In March, the dates are not multiple of 3 are:
1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 17, 19, 20, 22,
23, 25, 26, 28, 29, 31,

In April, the dates are not multiple of 4 are:
1, 2, 3, 5, 6, 7, 9, 10, 11, 13, 14, 15, 17, 18, 19,
21, 22, 23, 25, 26, 27, 29, 30,

In May, the dates are not multiple of 5 are:
1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14, 16, 17, 18,
19, 21, 22, 23, 24, 26, 27, 28, 29, 31,

In June, the dates are not multiple of 6 are:
1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17,
19, 20, 21, 22, 23, 25, 26, 27, 28, 29,

In July, the dates are not multiple of 7 are:
1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17,
18, 19, 20, 22, 23, 24, 25, 26, 27, 29, 30, 31,

In August, the dates are not multiple of 8 are:
1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17,
18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31,

In September, the dates are not multiple of 9 are:
1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16,
17, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 30,

In October, the dates are not multiple of 10 are:
1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16,
17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31,

In November, the dates are not multiple of 11 are:
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16,
17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30,

In December, the dates are not multiple of 12 are:
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16,
17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31,

Thank you for using this program!!
```

Figure 2 Sample output of Question1

Question 2: Shopping List Program

In this question, we will write a complete Java program to prompt the user for a sequence of items with its price in the format of "*Item1$Price1,Item2$Price2,Item3$Price3,*" as one string. Your program should separate the string into the item name and price individually and save the item names and prices in two different arrays (2D-character array and integer array) and display the list of items, total price accordingly.

You can expect a perfect user who will enter the correct format. Your program should work for any numbers of items that were entered.

For example

If the user's input is *"banana$1,tomato$5,apple$3,"*, then the info saved in the 2D-character array is:

b	a	n	a	n	a
t	o	m	a	t	o
a	p	p	l	e	

the info saved in the integer array is:

1	5	3

your program should display *"Here is the list of items: No.1 banana, No.2 tomato, No.3 apple. The total price is $9". (Note: your program should read the output data from the arrays).*
Hint: you can use *Integer.parseInt()* to convert a string to an integer number and *toCharArray()* to convert a string to an character array.

The following are sample screen shots to illustrate the expected behavior of your program. Your program must display the same information with the same format.

```
-------****-------****-------****-------****-----
      Welcome to Shopping List Program!
-------****-------****-------****-------****-----

Please enter your shopping list (item$price and seperate by comma):
0

You have 0 items in the list now!

Thank you for using this program!!
```

Figure 1 Sample output of Question2

```
-------****-------****-------****-------****-----
      Welcome to Shopping List Program!
-------****-------****-------****-------****-----

Please enter your shopping list (item$price and seperate by comma):
banana$1,tomato$5,apple$3,

Here is the list of items:

No.1 banana
No.2 tomato
No.3 apple
The total price is: $9.


Thank you for using this program!!
```

Figure 2 Sample output of Question2

```
-------****-------****-------****-------****-----
      Welcome to Shopping List Program!
-------****-------****-------****-------****-----

Please enter your shopping list (item$price and seperate by comma):
melon$3,cabbage$2,apple$5,pear$7,

Here is the list of items:

No.1 melon
No.2 cabbage
No.3 apple
No.4 pear
The total price is: $17.


Thank you for using this program!!
```

Figure 3 Sample output of Question2

Submitting Assignment 3

What to submit:

Zip the source codes (the .java files only please, **not** the entire project) of this assignment as a .ZIP file (**NOT** .RAR) using the following naming convention: *a#_studentID*, where # is the number of the assignment and *studentID* is your student ID number. For example, for this third assignment, student 123456 would submit a zip file named a3_123456.zip

How to submit:

Submit from Moodle course page. If you are in an eConcordia course, please check your eConcordia webpage for instructions on how to submit your assignment.

Evaluation Criteria for Assignment 3 (20 points)

Source Code	
Comments for all 2 questions (1.5 pts.)	
Description of the program (authors, date, purpose)	0.5 pts.
Description of variables and constants	0.5 pts.
Description of the algorithm	0.5 pts.
Programming Style for all 2 questions (1.5 pts.)	
Use of significant names for identifiers	0.5 pts.
Indentation and readability	0.5 pts.
Welcome Banner or message/Closing message	0.5 pts.
Question 1 (8 pts.)	
Prompt for the year info and valid the input	1.5 pts.
Display the correct month info in February	2.0 pts.
Use nested loop correctly	2.0 pts
Display the correct days of the months	1.5 pts.
Display the complete result	1.0 pt.
Question 2 (9 pts.)	
Prompt for the items' info	1.0 pt.
Create and fill the 2D-array	2.5 pts.
Create and fill the char-array	2.5 pts.
Display content of the shopping list	2.0 pts.
Display the result of total price	1.0 pt.
TOTAL	**20 pts.**