CS 003 - FUNDAMENTALS OF COMPUTER SCIENCE II (C++)

Lab2 : Review

AUG. 31, 2023

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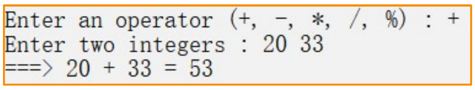
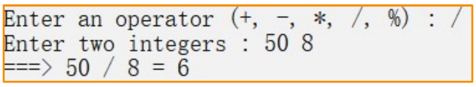
Problem 1.

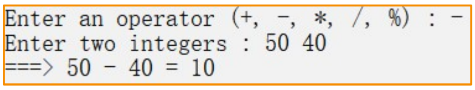
- Write a program that works as follows. Use **switch** statement. (operators : +, -, *, /, %)



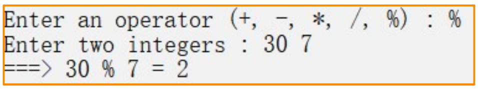
```
Enter an operator (+, -, *, /, %) : +
Enter two integers : 20 33
===> 20 + 33 = 53
```



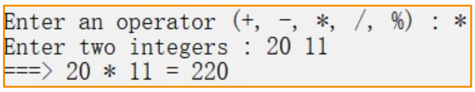
```
Enter an operator (+, -, *, /, %) : /
Enter two integers : 50 8
===> 50 / 8 = 6
```



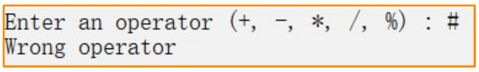
```
Enter an operator (+, -, *, /, %) : -
Enter two integers : 50 40
===> 50 - 40 = 10
```



```
Enter an operator (+, -, *, /, %) : %
Enter two integers : 30 7
===> 30 % 7 = 2
```



```
Enter an operator (+, -, *, /, %) : *
Enter two integers : 20 11
===> 20 * 11 = 220
```

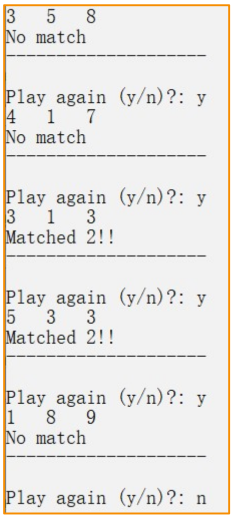


```
Enter an operator (+, -, *, /, %) : #
Wrong operator
```

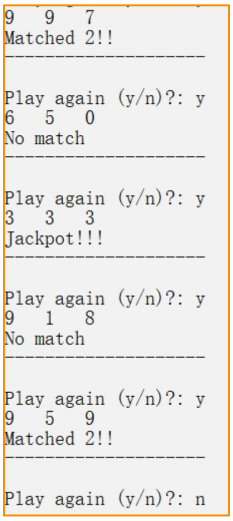
Problem 2.

- Design and implement an application that simulates a simple slot machine in which three numbers 0 and 9 are randomly selected and printed side by side. Print an appropriate statement if all three numbers are the same, or if two of the numbers are the same. Continue playing until the user chooses to stop. (use **while** loop)

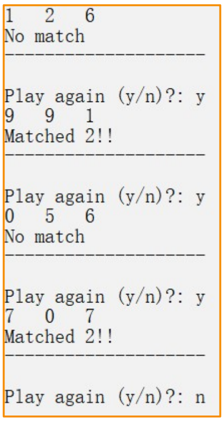
Problem 2.



```
3    5    8
No match
--------------------

Play again (y/n)?: y
4    1    7
No match
--------------------

Play again (y/n)?: y
3    1    3
Matched 2!!
--------------------

Play again (y/n)?: y
5    3    3
Matched 2!!
--------------------

Play again (y/n)?: y
1    8    9
No match
--------------------

Play again (y/n)?: n
```



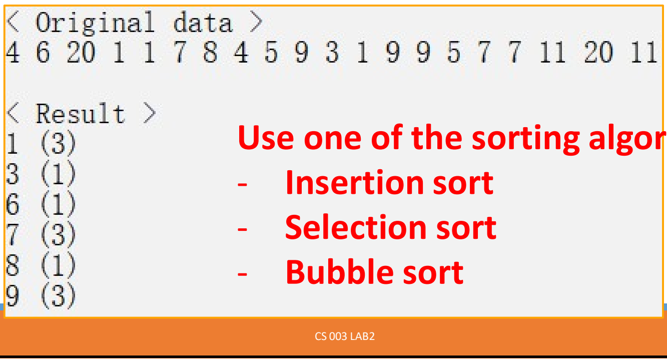
```
9    9    7
Matched 2!!
--------------------

Play again (y/n)?: y
6    5    0
No match
--------------------

Play again (y/n)?: y
3    3    3
Jackpot!!!
--------------------

Play again (y/n)?: y
9    1    8
No match
--------------------

Play again (y/n)?: y
9    5    9
Matched 2!!
--------------------

Play again (y/n)?: n
```



```
1    2    6
No match
--------------------

Play again (y/n)?: y
9    9    1
Matched 2!!
--------------------

Play again (y/n)?: y
0    5    6
No match
--------------------

Play again (y/n)?: y
7    0    7
Matched 2!!
--------------------

Play again (y/n)?: n
```

Problem 3.

- Write a C++ program to find a number which occurs odd number of times of a given array of positive integers.
  - Declare an array A of integers of size 20 and fill the array by random positive integers between 1 and 20 inclusively.
  - Find a number which occurs odd number of times and print them as follows.



```
< Original data >
4 6 20 1 1 7 8 4 5 9 3 1 9 9 5 7 7 11 20 11

< Result >
1 (3)
3 (1)
6 (1)
7 (3)
8 (1)
9 (3)
```

sorted

Use one of the sorting algorithm below.

- **Insertion sort**
- **Selection sort**
- **Bubble sort**