



COMSATS Institute of Information Technology Abbottabad
Department of Computer Science

LAB #1

Algorithms and Data Structures Class: BSE- 3 B

- Q1. Write a program that specifies whether a given number (x) falls in one of the following categories (give x a value from the code, don't read from user):
- 0 to 9
 - 10 to 19
 - 20 to 29
 - None of the categories

For example, if $x = 5$, program should print "0 to 9", and if $x = 44$ it should print "None".

Hint: use if statements/switch statement with boolean expressions.

- Q2. Write a program that asks the user to enter two numerical values (integers) and then select an operation (addition, subtraction, multiplication and division) then prints the result based on operation selected. The code below shows examples of the output (text shown in boldface is supposed to be user input).

Enter first number: 4

Enter second number: 2

1. Addition (+).
2. Subtraction (-).
3. Multiplication (*).
4. Division (/).

Enter operation number: 3

The result is 8

- Q.3 Write a program that asks the user to enter certain number, after that asks him to enter another 20 numbers, after entering them all, it prints out the number of occurrences of the first number. See the below example (text shown in boldface is supposed to be user input).

Enter number to search for: 2

Enter a number: (20 times)

2 3 56 7 9 2 4 5 5 6 2 21 33 19 32 88 0 32 100 20

The number (2) occurred 3 times in your input.

Q4. Write a class `Book` with three data members `BookId`, `Pages` and `Price`. It also contains the following member function:

- The `get()` method is used to input values
- The `show()` method is used to display values
- The `set()` method is used to set the values of data members using parameters
- The `getPrice()` method is used to return the value of price

Q5. Write a class `Result` that contains `roll no`, `name` and `marks` of three subjects. The marks are stored in an array of integers. The class also contains the following member functions.

- The `input()` method is used to input values
- The `show()` method is used to display values
- The `total()` returns the total marks a student
- The `avg()` method returns the average marks of a student