



# Simple Java programming (Part 2)

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# Question-1

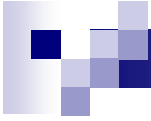
- Write a program for the Vieta's Theorem in the Quadratic Equation .
  - If the two roots of the equation are “a” and “b”, then the Quadratic equation can be written as  $x^2-(a+b)x+ab=0$
  - Requirement: Enter the two roots and display the equation.



# Code

```
import java.util.Scanner;
public class Quadratics{
    public static void main(String[] args) {
        Scanner keyboard = new Scanner(System.in);
        int firstRoot, secondRoot,a,b;

        System.out.print("Please enter first root: ");
        firstRoot = keyboard.nextInt();
        System.out.print("Please enter second root: ");
        secondRoot = keyboard.nextInt();
        a = -(firstRoot + secondRoot);
        b = firstRoot * secondRoot;
        System.out.println("Your quadratic is : x^2 + (" + a + ")x +
" + "(" + b + ")");
    }
}
```



## Question-2 (Exercise 1)

Write a program which consists of a single class called BMI Calculator. This class must define a method called main() which does the following:

- (1) Asks the user to enter his/her weight (in kilograms) and his/her height (in meters)
- (2) Calculates the user's Body Mass Index (BMI); a person's BMI can be computed by dividing his /her weight in kilograms by the square of his/ her height in meters.
- (3) Displays the user's BMI it to the screen

*This questions is created by Mathieu Petitpas*



# Code

```
import java.util.Scanner;
public class Quadratics{
    public static void main(String[] args) {
        Scanner keyboard = new Scanner(System.in);
        double Weight, Height, a;

        System.out.print("Please enter your Weight : ");
        Weight = keyboard.nextInt();
        System.out.print("Please enter second Height: ");
        Height = keyboard.nextInt();
        a = Weight / (Height * Height);
        System.out.println("Your BMI is : " + a );
    }
}
```



# Question-3

## Exercises (2)

Write a program which consists of a single class called `EnergyCalculator`. This class defines a method called `main()` which does the following:

- Asks the user to enter a quantity of water (in kilograms), an initial temperature (in Celcius degrees), and a final temperature (also in Celcius degrees)
- Calculates how much energy (in joules) is needed to raise that quantity of water from the initial temperature to the final temperature; the formula for this calculation is  $q = 4184 \cdot m \cdot (f - i)$ , where  $q$  is the energy,  $m$  is the quantity of water,  $f$  is the final temperature, and  $i$  is the initial temperature. You may assume that there are no state transitions (from ice to water or water to steam, for example) in the temperature interval
- Displays the required energy quantity to the screen



# Question-4

## Exercises (3)

Write a program which consists of a single class called `GoalieStatsCalculator`. This class defines a method called `main()` which does the following:

- Asks the user to enter the number of minutes an ice hockey goalie has played, the number of goals he / she allowed, and the total number of shots he / she faced
- Calculates the goalie's goals against average (GAA) and save percentage; the GAA is the number of goals allowed per 60 minutes of play, while the save percentage is the number of saves (the total number of shots minus the number of goals allowed) divided by the number of shots faced
- Displays the goalie's GAA and save percentage to the screen