JAVA PROGRAMMING COURSE (SWE2023)

FALL SEMESTER 2022

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COLLEGE OF SOFTWARE

Assignment 1

This assignment consists of 3 tasks. Guidelines for submission format are given at the end of the assignment file.

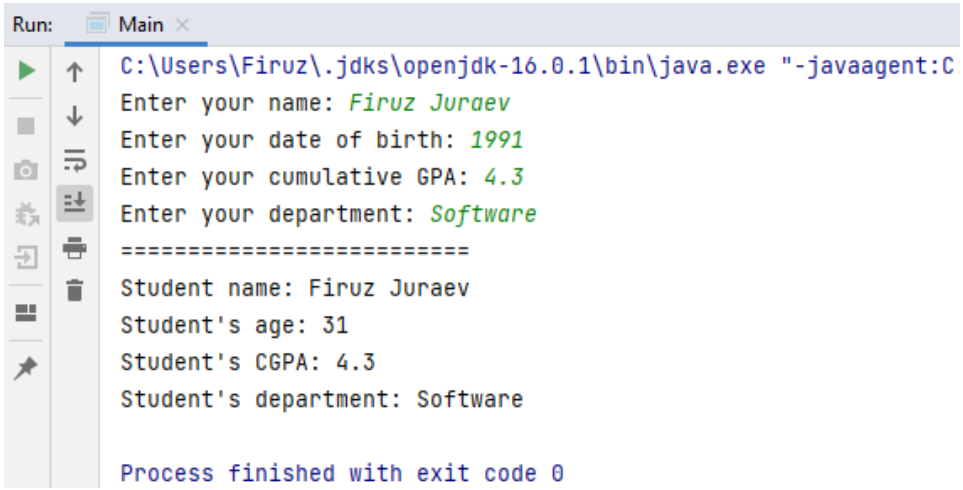
Note: The green numbers and green words in the console are the user's inputs (Used IDEA: IntelliJ IDEA 2021.1).

Task 1

(Information Desk) We need your help to create a program that takes students' information.

You have to create a program that has one class called **Student**. The class **Student** must have the following variables: ***student name, date of birth, cumulative GPA, and department***. In addition, the class Student must have one method for calculating the student's age based on his/her date of birth.

After getting all information from students, print the student's information (with calculated age - global age).



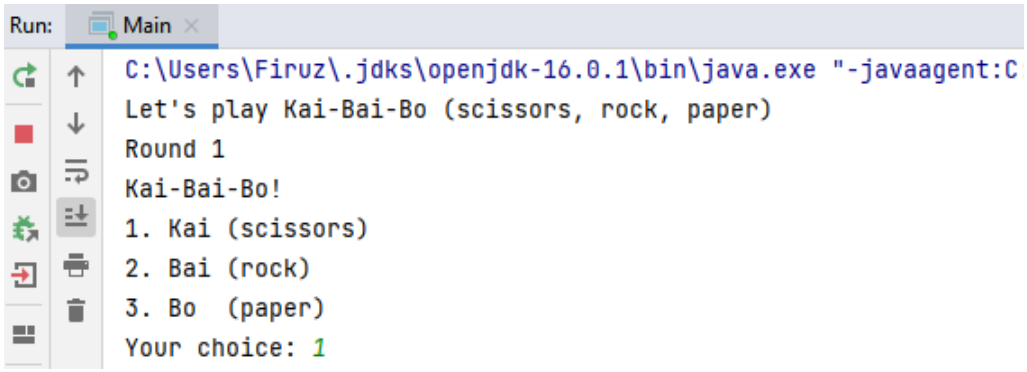
Note: when you output student's information, use the Student class object:

```
Student studentObject = new Student(studentName, dateOfBirth, gpa, department);
System.out.println("==========");
System.out.println("Student name: " + studentObject.getStudentName()); // coming from Student class
System.out.println("Student's age: " + studentObject.getAge());
System.out.println("Student's CGPA: " + studentObject.getGpa());
System.out.println("Student's department: " + studentObject.getDepartment());
```

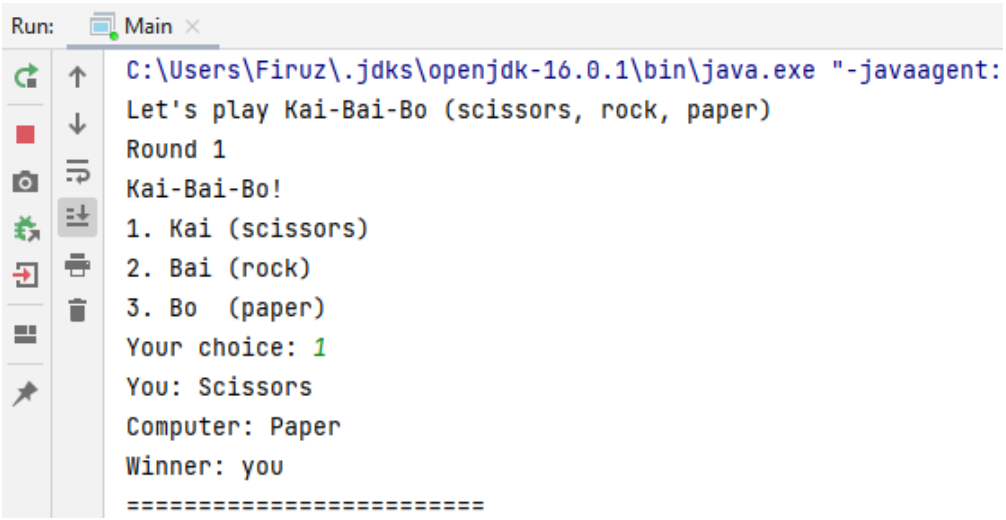
Task 2

(Kai-Bai-Bo) In our childhood, we all played ***Kai-Bai-Bo*** (scissors, rock, paper). Sometimes, we want to play this game again but we are adults already. Let's secretly create a Java program to play ***Kai-Bai-Bo*** with a computer. There will be 3 rounds and in each round, you choose one of the objects by entering the digit (1 for scissors, 2 for rock, and 3 for paper) and the computer chooses numbers randomly.

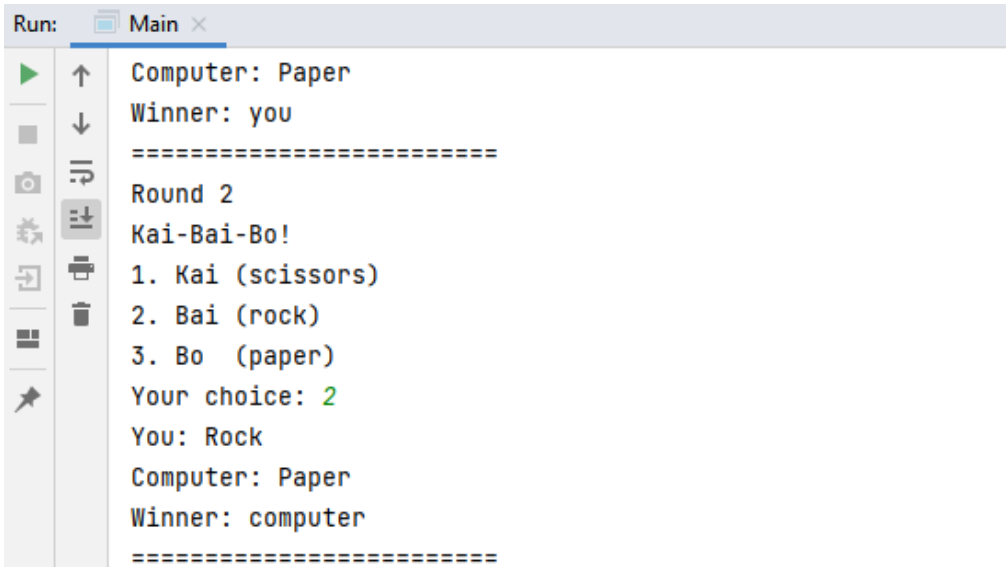
1. First, the program asks you as follows:



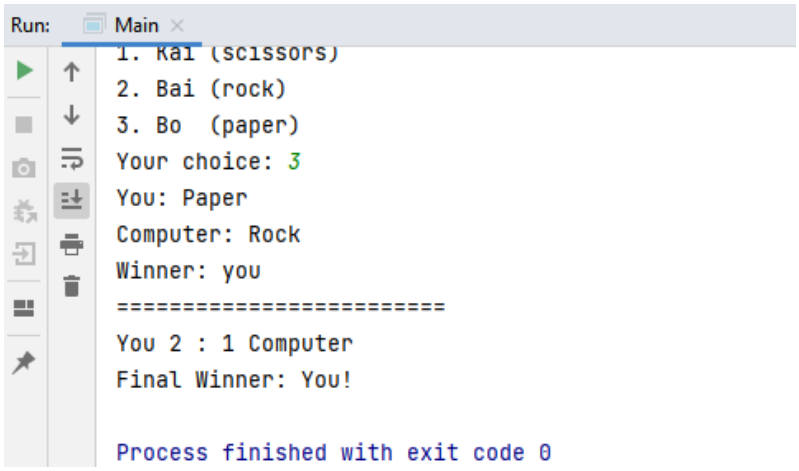
After entering your choice, the program print who won with computer choice.



2. After getting the result of the first round, the program repeats the same process:



3. After three rounds the program stops and shows the final result:



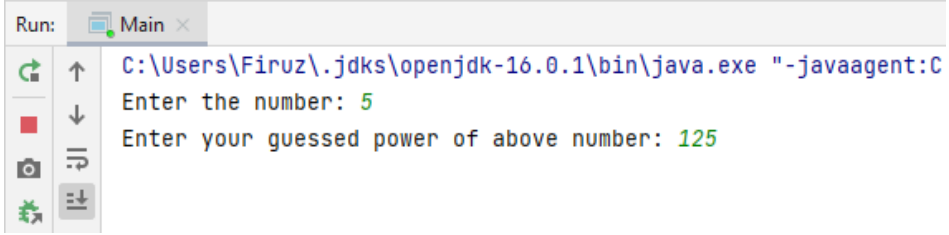
The final score is calculated as follows: 1 for the winner, and 0 for a draw. In the given example above, the player won 2 times and the computer won 1 time, there were no draw and the final result is (you) **2 : 1** (computer).
Enjoy playing this game again!

Hint: Use the java Random class for generating computer choices randomly.

```
Random randomGenerator = new Random();
computerChoice = randomGenerator.nextInt( bound: 3) + 1;
```

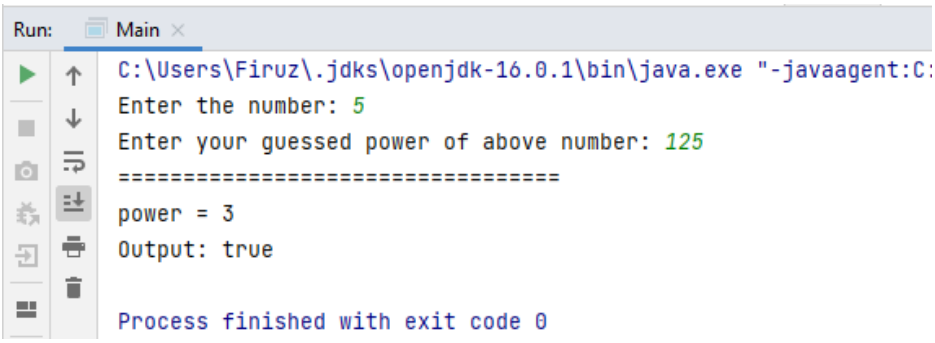
Task 3

(Power of) Now, let's do a logical task. We need to create a program that helps children to learn multiplication. You have to create a program that takes two numbers, the first number is the base number and the second one is the possible power of the first number.

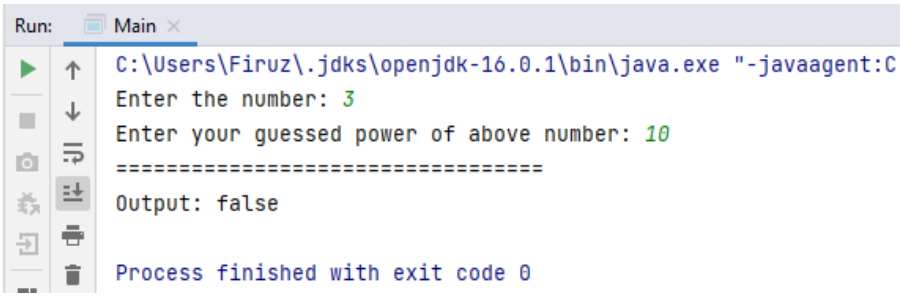


Here, we entered the first number as **5** and the second number as **125.** Is 125 power of 5? Yes, **5^3 = 125**. In this case, your output will be as follows:

Output:



If the second number is not the power of the first number, your output will be as follow:



Grading:

- Correctness and completeness of your code (should be run without errors) - **70%**
- Clean code (comments, good naming, clean functions) - **30%**

Submission format: Submit **four separate files (only .java files, not the whole project folder)**. For the first task, there are two files (Main.java and Student.java). Files must include the implementation code of each task and comments for

important lines of code to explain the purpose. All the files should be submitted as one **zip** file.

Name of zip file: {student ID}_{Student name}_assignment1.zip

Example: 2020712837_Frank_Thomas_assignment1.zip

Important: Plagiarism is strictly prohibited. If there is any plagiarism found in the code, you will be given an "F" for the assignment evaluation.

If you have any questions about the assignment, you can ask them in the discussion section of the week or contact the TAs directly.

Good luck!