Sirma

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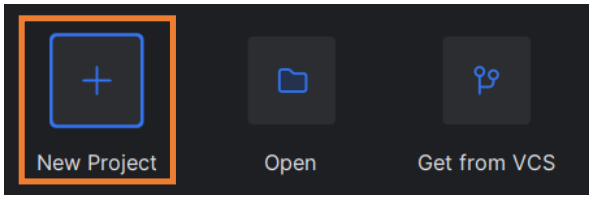
Basic Syntax- Exercises

1. Create new project

1. Start IntelliJ Idea
2. From the menu, select "New Project":



3. Name you project and select the Java Version

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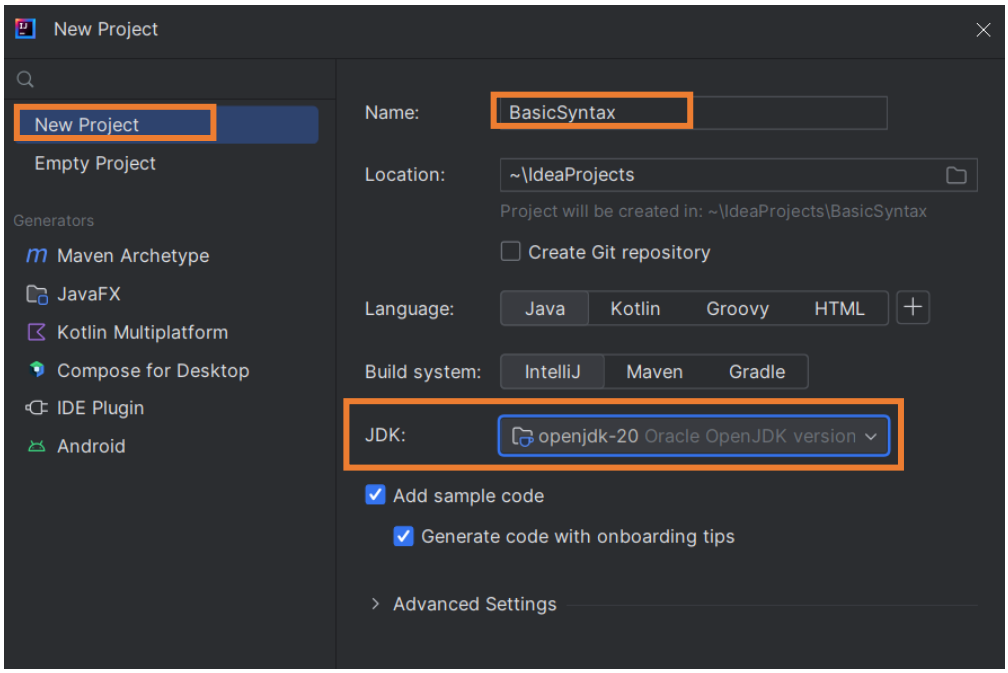
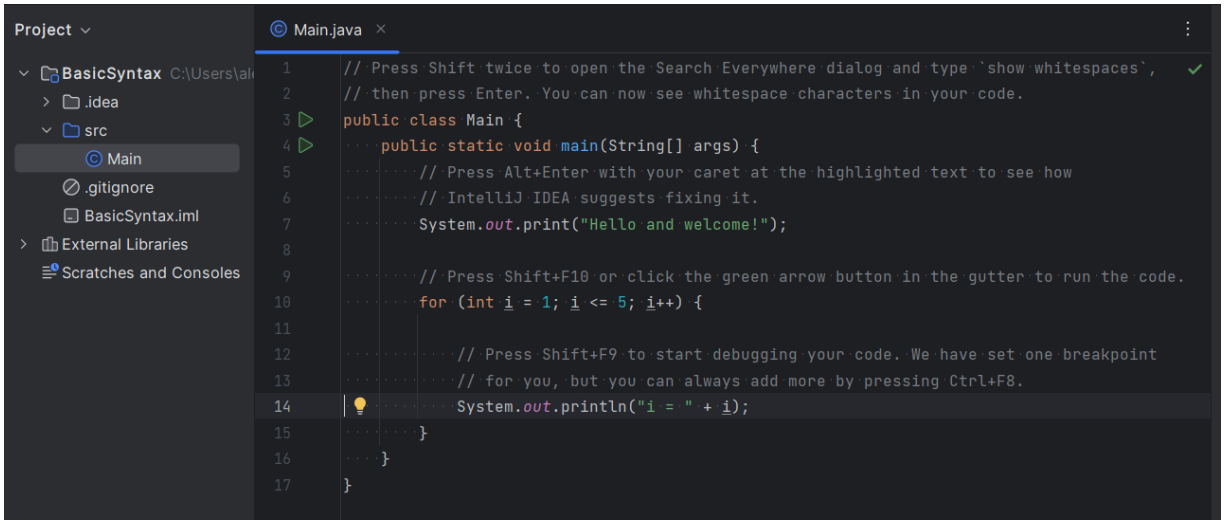


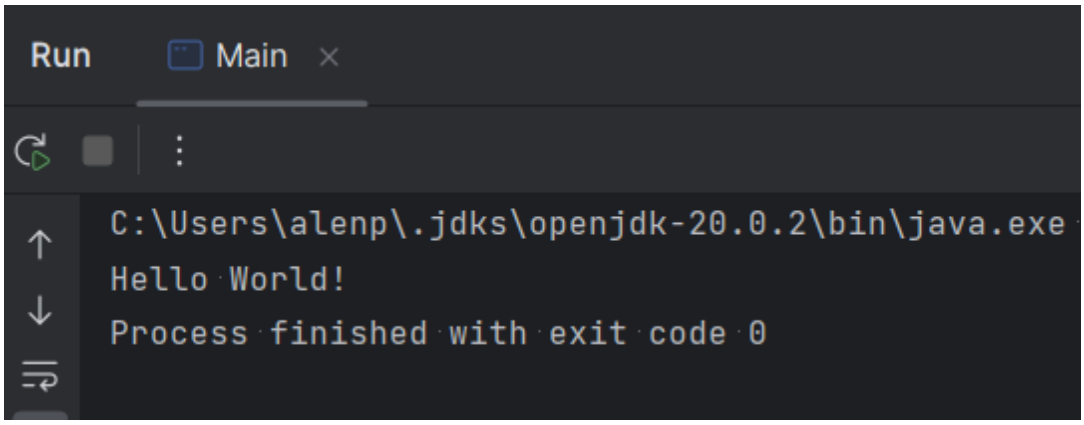
4. Our new project is ready:



2. First Program

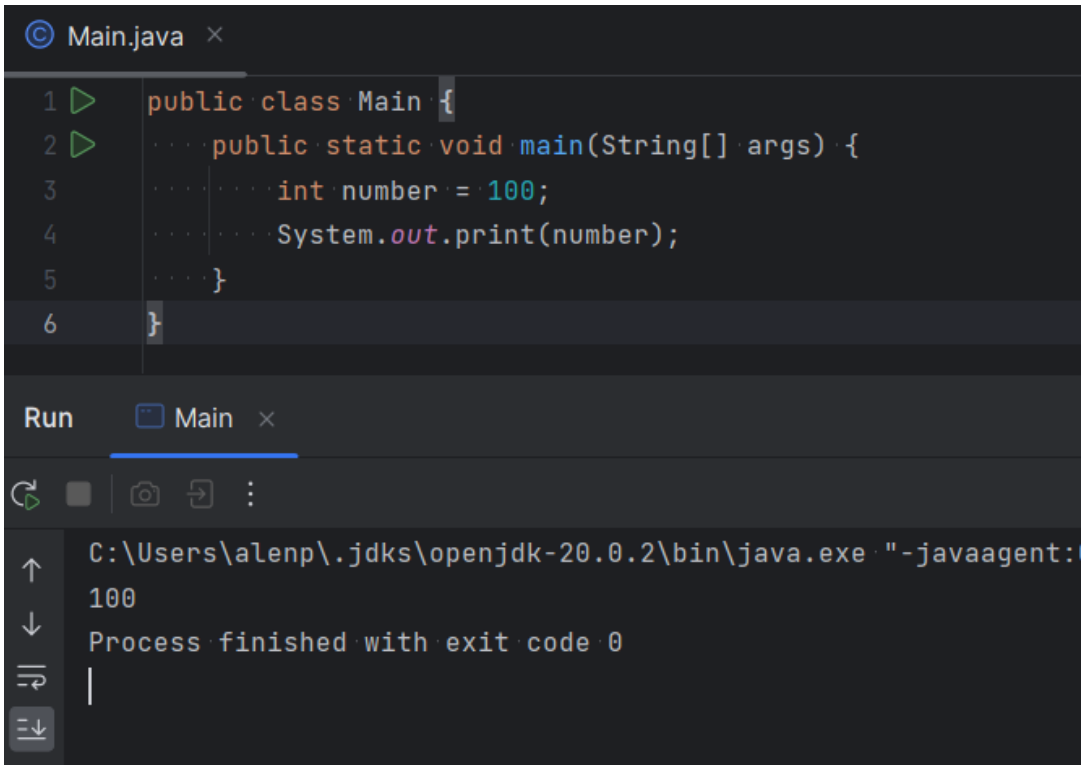
Write a program that prints "Hello, world!".

1. Between the opening and closing shape brackets of the "main" method, type the print command.
2. In the brackets of the command, in quotation marks write – "Hello, world!"
3. Start the program with "Ctr + Shift + F10" or by clicking on a right mouse button on an empty field of the text editor – Run 'Main'



3. Different data types

1. Create an int type variable to which you assign a value of 100. Print the value of the variable.
2. Create a variable of type "double" to which you assign a value of 3.15. Print the value of the variable.



4. Read User Input - Name

Write a program that reads a name (text) from the console and then prints it.

1. Create a data reader – Scanner.
2. Create a variable of type String and assign it the value that will be entered on the console.

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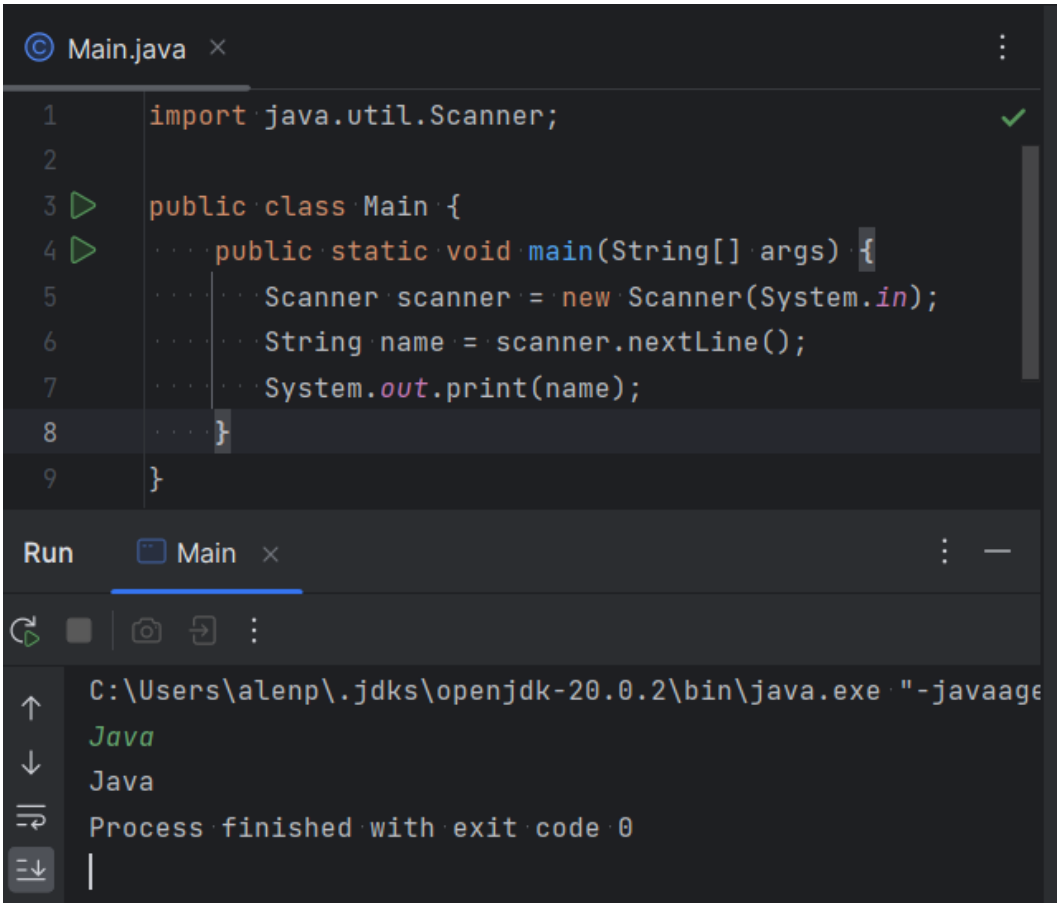
3. Print by calling the name of the variable.



5. Read different data

Write a program that reads the following data sequentially on separate lines:

- Text
- Symbol
- Integer
- Real number

For each data type, create a separate variable and read from the console by a command corresponding to the specific type – String, char, int, double.

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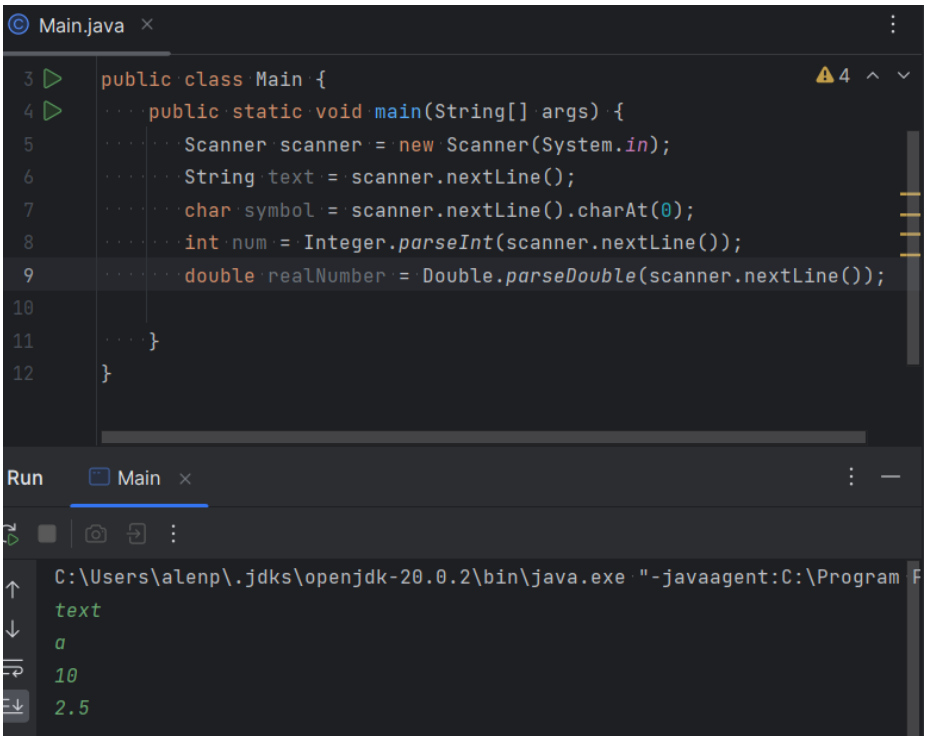

6. Printing

Write a program that uses the data from task 5 and prints:

1. Each variable on a new line, in the order in which they are read.
2. All variables on one line (each in a separate command).

7. Weather Forecast

Write a program that reads from the console city (text) and degrees (integer) and displays the following message on the console: "**Today in {city} it is {degrees} degrees.**".

Tip: use "printf" to format more easily or String.format();

```
public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        String town = scanner.nextLine();
        int degrees = Integer.parseInt(scanner.nextLine());
        System.out.println(String.format("Today in %s it is %d degrees", town, degrees));
        System.out.printf("Today in %s it is %d degrees", town, degrees);
    }
}
```

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8. Kilometers to Miles

Write a program that reads kilometers (real number) from the console and converts them to miles. Print the result on the console. 1 kilometer is equal to 0.621371192 miles.

Examples:

Input	Output
10	6.21371192
23	14.291537416
115	71.45768708

9. Calculate

Write a program that reads two integers "numOne" and "numTwo". Following the described sequence, find and print:

- Sum of numbers
- Difference Between Numbers
- Multiplication
- Moderately arrhythmic

Input	Output
25 *5*	The sum is: 30 The difference is: 20 The product is: 125 The average is: 15.000000
7 *2*	The sum is: 9 The difference is: 5 The product is: 14 The average is: 4.500000
26158 *19*	The sum is: 26177 The difference is: 26139 The product is: 497002 The average is: 13088.500000
3 *46*	The sum is: 49 The difference is: 43 The product is: 138 The sum is: 24

10. Time

Write a program that reads minutes (integer) and converts them into hours and minutes. Print the result in HR:MM format.

Input	Output
60	01:00
90	01:30
325	05:25

11. Speed

Write a program that calculates the speed in meters per second and displays the result on the console.

The input data are integers as follows:

- Distance in meters
- Hours
- Minutes
- Seconds

Use the formult V **= S/**T where V - speed, S - distance, T - time

INPUT	OUTPUT
100 *1* *20* *20*	0.020747
2500 *5* *56* *23*	0.116915
600 *7* *35* *55*	0.021934

12. Painting

For the painting of 3 rooms they spent **n** kg of paint (equally for each room). To get the desired color, they mixed yellow, red and white paint. The yellow paint was 4 times more than the red and 2 times less than the white. How many kilograms of each color did they spend on painting a room?

From the console read **n** -> total paint consumed.

The output must be rounded to **the fourth** decimal point.

INPUT	OUTPUT
150	Red: 11.5385 Yellow: 46.1538 White: 92.3077
120	Red: 9.2308 Yellow: 36.9231 White: 73.8462
630	Red: 48.4615 Yellow: 193.8462 White: 387.6923

13. Office

For the furnishing of the office purchased 3 cabinets. One cabinet cost **$n**, the second was 20% cheaper than the first, and the third cost 15% more than the other two combined.

From the console read the total cost of the three cabinets – a real number.

The output must be rounded to the second decimal point.

INPUT	OUTPUT
380	1470.6
720.50	2788.335
455.30	1762.011

14. Journey

A car started from the city of Sofia to the city of Berlin at a speed **of x** km / h, and 2 hours later another car went to the same destination at a speed y km / h. How many kilometers will be the distance between the two cars 3 hours after the departure of the first car?

INPUT	OUTPUT
81 *120*	45
100 *90*	230
	105

15. Body Mass Index (BMI)

Calculate the Body Mass Index (BMI) based on the given weight (in kilograms) and height (in meters).

Use the formula BMI= Weight / Height^2.

INPUT	OUTPUT
70 *1.73*	22.96
60 *1.75*	20.76
85 *1.80*	27.68

16. Water Consumption

Calculate the daily water consumption per person in a household. Given the total water consumption in liters for a week and the number of people in the household, find out the daily consumption per person.

Use the formula

Daily consumption per person = Total weekly consumption / 7 * Number of people

INPUT	OUTPUT
2450 *7*	50.00
3150 10	45.00
980 *7*	20.0

17. Electricity Bill

Calculate the monthly electricity bill based on the number of units consumed and the rate per unit. Additionally, a fixed charge of $10 is added to the bill.

Use the formula

Total Bill = (Units consumed × Rate per unit) + 10

INPUT	OUTPUT
100 *1.0*	110.00
200 *1.0*	220.00
150 *1.1*	175.5

18. Average Speed

Calculate the average speed of a vehicle that has traveled a certain distance D in kilometers over a given time T in hours.

Use the formula Average Speed = D / T.

On the first line, you receive the distance D in kilometers.

On the second line, you receive the time T in hours.

INPUT	OUTPUT
200 *2*	100.00
150 3	50.00
300 *5*	60.00

19. Fuel Efficiency

Calculate the fuel efficiency of a car given the total distance traveled D in kilometers and the total fuel consumed F in liters.

Use the formula: Fuel Efficiency = D / F

On the first line, you receive the distance D in kilometers.
On the second line, you receive the fuel F in liters.

INPUT	OUTPUT
500 ***40***	12.50
600 40	15.00
750 *40*	18.75

20. Circle Circumference

Calculate the circumference of a circle given its radius R.

Use the formula: Circumference = 2 * pi * R

On the first line, you receive the radius R.

INPUT	OUTPUT
5	31.42
7	43.96
10	62.83