

User Input

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Before we begin

- Make sure you have Java & Java JDK downloaded on your computer
 - can run **java -version** in terminal to check
- Make sure you have IntelliJ downloaded on your computer
- *Suggested:* Watch previous Java tutorials

Vocab Alert!

console: area on the screen where program output is printed and user input is taken in

interactive program: a program that reads input from the user via the console

prompt: a message telling the user what input to type.

token: A unit of user input, separated by whitespace

System.in: keeps track of user input, what tokens are read from

Scanners

A Scanner is an object that is used to read from **System.in**. It is able to read and consume **tokens** that the user inputs to the **console**.

Note: You can only have 1 Scanner per class read from **System.in**, this means if you want to have multiple methods that read from **System.in** you will need to pass a Scanner as a parameter to those methods.

Scanner Methods

nextInt() - reads an int from the user and returns it

nextDouble() - reads a double from the user

nextLine() - reads a one-line String from the user

next() - reads a one-word String from the user

hasNext(), hasNextInt(), hasNextDouble(), hasNextLine() - check to see if the next whatever is available on the Scanner, if true have something else to grab

Notes:

- Each method waits until the user presses [Enter]
- The value typed by the user is returned

Sample User Input Code

```
import java.util.Scanner;

public class UserInputExample {
    public static void main(String[] args) {
        Scanner console = new Scanner(System.in);

        System.out.print("How old are you? ");
        int age = console.nextInt();
    }
}
```

Common Errors

- Forgetting the import at the top of the file
- Attempting to get the wrong type of token
 - e.g. calling `scanner.nextInt()` when the next token is "hello"
- Forgetting to save off the token that you just got
- Losing track of which tokens you have already gotten

Cool Thing

You can use Scanners for things besides reading from user input. They can be used to scan over a multi word string!

```
import java.util.Scanner;

public class ScannerPractice {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter a multi word line of text");
        String line = scan.nextLine();
        Scanner textScanner = new Scanner(line);

        while (textScanner.hasNext()) {
            System.out.println(textScanner.next());
        }
    }
}
```


User Input Exercises

User Input Exercise #1

Time Limit: 5 minutes

Write a method that prompts the user to enter two people's heights in inches. Then, print out which person is taller.

User Input Exercise #2

Time Limit: 5 minutes

Write a method that asks a user for 3 numbers and returns true if the numbers are all distinct

User Input Exercise #3

Time Limit: 7 minutes

Write a method that determines if we have time to go out for lunch and can afford it. Inputs are distance to restaurant, average walking speed, time required to finish meal, time available, expected cost of meal, and money available

User Input Exercise #4

Time Limit: 10 minutes

Write a method that asks the user for a line of input and returns if that line of input is a palindrome (the same backwards and forwards)

Example palindromes:

- mirror rim
- race car
- hannah

Practice for Later: Paper, Rock, Scissors Update

Edit your Paper, Rock, Scissors code from the if/if else practice problem to take in user input for the 2 players' moves AND take in user input asking the user if they would like to play a game of Paper, Rock, Scissors. You should continue to play the game as long as the user enters a "Y" for wanting to play the game. They should play 1 round before being asked if they would like to play again.

The End