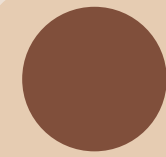


# Topic 1.3: Variable Scope & Constants

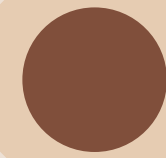
# Learning Goals (Week 1):



Identify data types based on value



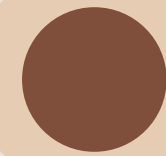
Map variables to the current values



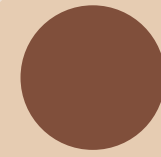
Perform basic operations on variables



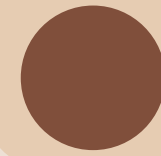
**Create and use Java and user-defined methods**



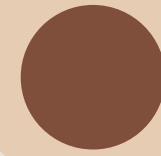
Format Printed Output



Obtain and process user input from the console



Use booleans, conditionals, and compound conditionals correctly



Select and implement different types of loops depending on scenario



Use special String and Math operations



Successfully implement and manipulate java arrays

# Global Variables

Global variables must be declared outside of any method

for now be sure to add the **static** keyword in front (will make sense in a few weeks)

```
public class GlobalExample{  
  
    static int id = 1001;  
  
    public static void main(String[] args) {  
        System.out.println(id);  
    }  
}
```

# Scope

Declaring a local variable with the same name as a global one will **shadow** it.

```
public class GlobalExample{  
  
    static int id = 1001;  
  
    public static void main(String[] args) {  
        int id = 2000;  
        System.out.println(id); // prints 2000  
    }  
}
```

You can use the Global one using a special way of calling it, but this becomes messy and confusing. Avoid duplicate variable names whenever you can.

# Named Constants

Adding the keyword **final** before a declaration makes it a “constant,” not a “variable.” This promises that its value will never change and will produce an error if you ever try to change it

```
public class FinalExample{
    public static void main(String[] args) {
        final int LEGAL_AGE = 18;
        System.out.println(LEGAL_AGE); // prints 18
        LEGAL_AGE = 21; // this line will throw a compile time error
    }
}
```

NAMING\_CONVENTION\_IS\_ALL\_UPPER\_CASE\_WITH\_UNDERSCORES

```
int userInput;                //This is a regular variable
final double TAX_RATE = 0.13; //This is a constant
```

# Pause & Ponder

There is no answer sheet for these questions. The best way to answer these is to try them out yourself.

1. How do you make a final static variable?
2. Can you shadow a final static variable?
3. Can all data types be final?
4. Can all data types be global/static?
5. When are some situations where a final variable makes sense?
6. When are some situations where a static variable makes sense?
7. What are some situations where a final static variable makes sense?