

Today

- ICA in Gradescope
- Practice with variables and if-statements

Hand in your Practice with Variables Sheet

Worksheet 1 - Variables | Name: _____ Netid: _____

Complete this table by hand and hand it to your Prof or TA at the beginning of the lecture on Oct 21st.

Task	Processing code
Define an integer variable x with a value of zero	int x = 0;
Create an integer variable y with a value of minus 14	
Declare a boolean variable isRunning and set it to true.	
Create a character variable grade and set it to 'A'.	
	int age = 5;
Given the variable int radius, Define and compute the value of the variable area for such a circle	
Given the variable int radius, Define and compute the value of the variable circumference for such a circle.	
Given the variable int side, define and compute the value of the variable perimeter for such a square.	

Review topics

We have different Programming languages

Difference between = and ==

; after if statements

Boolean comparisons

if , else, else if

Print

Write the pseudocode

Python:

Wrong indentation = Wrong Program

Syntax Error:

```
if 5 > 2:  
print("Five is greater than two!")
```

Lecture 12

Syntax Error:

```
if 5 > 2:  
    print("Five is greater than two!")  
        print("Five is greater than two!")
```

= versus ==

= for assigning values

== for comparisons

The name of the variable.

`my_variable = 123;`

Left of equals: the type and name

Right of equals: the value!

Every variable that you create should have the equals!

the value to “store” inside of the variable

Boolean Operators

Lecture 19

- There are several ways to make a boolean expression
 - Just write the name of a boolean variable (for example: **keyPressed** or **mousePressed**)
 - Compare two non-boolean values (numbers or characters) with comparison operators

< > <= >= == !=
 - Use Boolean logical operators

If statement Template

```
if (
```

*Anything written between curly brackets will be
executed only if the condition is true*

```
}
```

Question 1

- a) Write an if statement that sets the fill() to red if the key built-in variable is equal to the character 'm'
- b) Write an if statement that will draw a rectangle if the mouse is pressed

```
// if key is equal to the character 'm'  
// sets the fill( ) to red
```

```
if(key == 'm') {  
    fill(255,0,0);  
}
```

Question 2

Write a program that finds the smallest value of two variables x and y

SOLUTION FROM A STUDENT

```
// if first variable is less than second
// print the value of the first variable
// else print the value of second variable
if (x > y) {
    print(y);
}
else {
    print (x);
}
```

SOLUTION FROM A STUDENT

```
// if first variable is less than second
// print the value of the first variable
// else if the second is less than the first one
// print the value of second variable
// else print the variables are equal
if ( x  >=  y ) { //if second variable is less than first.
    print("y is less than x");
} else if ( x <= y)  { //if first variable is less than
second.
    print("x is less than y");
} else if (x == y ) { //if x and y are equal.
    print("both are equal");
}
```

Question 3

Write a program that finds the largest value of two variables

Question 4

Write a program that swaps the values of three variables in a circular manner (A \rightarrow B, B \rightarrow C, C \rightarrow A).

SOLUTION FROM A STUDENT

```
// set values for variables A, B, and C  
// set a temporary variable with the values of B and C  
// store A into B, store B into C, store C into A
```

```
int tempB = B; //old value of B  
    B=A;  
int tempC = C;  
    C=tempB;  
    A=tempC;
```

SOLUTION FROM A STUDENT

```
// set values for variables A, B, and C  
// set a temporary variable with the values of B and C  
// store A into B, store B into C, store C into A
```

```
int tempC = C; //old value of C  
    C=B;  
    B=A;  
    A=tempC;
```