

ANNOUNCEMENTS

- ❖ Project #2 posted. Do not wait to start working on it.
- ❖ No posting of code in the forum.
- ❖ You must implement programming projects by yourself.

SUGGESTIONS FOR SOLVING PROBLEMS USING A PROGRAMMING LANGUAGE

- ❖ **Design-** Make sure you first come up with a plan/design for your code (e.g., using pseudocode).
- ❖ **Do not wait until the last minute** – Code implementation can be unpredictable.
- ❖ **Incremental code development** – Fundamental principle in computer programming. Write a little bit of code, and make sure it works before you move forward.
- ❖ **Don't make assumptions** – If you are not clear about a language construct write a little program to familiarize yourself with the construct.
- ❖ **Good Indentation** – From the get-go use good indentation as it will allow you to understand your code better.

SUGGESTIONS FOR SOLVING PROBLEMS USING A PROGRAMMING LANGUAGE

- ❖ **Good variable names** – Use good variable names from the beginning (do not use x and y and then change them to meaningful names before submitting the project).
- ❖ **Testing**
 - ❖ Test your code with simple cases first.
 - ❖ Test as you develop your code.
- ❖ **Keep backups** – As you make significant progress in your development, make the appropriate backups
- ❖ **Trace your code**
- ❖ **Use a debugger**
- ❖ **Take breaks** – If you cannot find a bug take a break and come back later.

DESIGNING USING PSEUDOCODE

- ❖ So far we have focus on the syntax and semantics.
- ❖ As the complexity of problems increases you need a design strategy to solve such problems.
- ❖ Several alternatives exist to come up with a solution to a problem. A popular one is pseudocode.
 - ❖ **Pseudocode:** English-like description of the set of steps required to solve a problem.
- ❖ When you write pseudocode you focus on determining the steps necessary to solve a problem without worrying about JavaScript language syntax issues.

PSEUDOCODE EXAMPLE

Pseudocode for finding the minimum value

1. Read number of values to process (call this value n)
2. Repeat the following steps until the n input values has been processed
 - a. Read next value into x
 - b. If (x is the first value read)
 currentMinimum = x
 else {
 if (x < currentMinimum)
 currentMinimum = x
 }
c. Read next value into x
3. Print currentMinimum value

PSEUDOCODE ELEMENTS

- ❖ When writing pseudocode you need the following fundamentals constructs:
 - ❖ Input
 - ❖ Output
 - ❖ Assignments
 - ❖ Repetition Structures
 - ❖ Conditionals
- ❖ To help you with the design of pseudocode you can use the following syntax to represent the above constructs.

PSEUDOCODE ELEMENTS

❖ Input

variable = read() e.g., x = read()

❖ Output

print(variable) e.g., print(x)

❖ Assignment

x = <value> e.g., x = 20, s = "Bob"

❖ Repetition

while (expression) {	OR	do {
stmts		stmts
}		} while (expression)

- ❖ Notice the above constructs look like JavaScript code but they are not JavaScript code.

PSEUDOCODE ELEMENTS

Conditional (1)

```
if (expression) {  
    stmts  
}
```

Conditional(2)

```
if (expression) {  
    stmts  
} else {  
    stmts  
}
```

Conditional (3)

```
if (expression1) {  
    stmts  
} else if (expression2) {  
    stmts  
    ...  
} else if (expressionN) {  
    stmts  
} else {  
    stmts  
}
```

- For comparisons use: ==, <, >, <=, >=
- Notice the above constructs look like JavaScript code but they are not JavaScript code

HOW GOOD IS YOUR PSEUDOCODE

- ❖ Your code does not use language constructs that are particular to a programming language.
- ❖ Anyone receiving the pseudocode will not need to ask you questions in order to transform the pseudocode into code (no matter what is the target programming language)

DO WHILE STATEMENT

- ❖ do while statement – Allows repetition of a set of statements.
- ❖ **Basic Form**
do
statement // executed as long as expression is true
while (expression);
- ❖ Notice the semicolon after the expression parenthesis
- ❖ Executes the statement at least once
- ❖ If you want to execute more than one statement { }
- ❖ **Example:** DoWhile.html
- ❖ Any type of statements (including do whiles) in a do while.
- ❖ alert – Used to generate a dialog box
- ❖ When to use a do while?
- ❖ When to use a while?

LET'S WRITE A PROGRAM

❖ Logging System