**COMPUTER SCIENCE 2 – JAVASCRIPT PROGRAMMING – CHAPTER 3 TEST**

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**Each question below is worth 3 points. Please answer clearly in the space provided.**

1. What is an array?

An array is an ordered collection of values referenced by a single variable name.

1. Name and describe 3 benefits of using arrays in computer programming.

3 benefits of using arrays is they can hold data temporarily, store a static set of values such as days of the week or months of the year to input entered by users, and creates an organized table for the user to see.

1. Describe the significance of efficiency in computer programming.

Efficiency is very important in computer programming because code can get very confusing and complicated. Using loops or conditional statements can save the time for keep writing the same sets of code over and over again. This will make the code much more organized and less room for errors.

1. If the array is like a table, the array index is the table name
2. Is the array size mandatory? Explain why or why not.

The array size is not mandatory because if it is not specified, the array size will auto control itself. However, to increase the size, set length to a number higher than the highest index value. To decrease the size, set length to a number lower than the highest index value.

1. Name and describe any 3 array methods supported by JavaScript.

3 array methods are reverse() which sorts the data backwards, sort() which sorts the data in ascending order, and pop() which drops the last value of an array.

1. You have an array called StudentRoster containing 25 names that you’d like to arrange alphabetically by name. To accomplish this you are going to use the sort() method.
2. You suddenly realize that the last entry on that list is a duplicate. To quickly remove it you are going to use the pop() method.
3. You then realize that 3 student names were omitted from the middle of the list. To correct this you can add the missing names using the splice() method.
4. The three types of loops we covered in the chapter are the FOR loop, the WHILE loop and the DO/WHILE loop.
5. You are working with a program that prompts the user to enter a user id and a password and should continue the prompt until this information is correct. To accomplish this you should use the DO/WHILE loop.
6. You are working with a program that will give the user a 20 second warning before the computer shuts down for system updates. To accomplish this you should use a FOR loop.
7. You are working with a loop that will add all of the values stored inside of an array and print the total when it reaches the end. Encountering a null value in this process would result in a LOAD TIME error. To keep this from happening you should use the continue command in your loop.
8. What is the main difference between the FOR loop and the other two loops covered in class.

The FOR loop, unlike in other loops, executes commands as many times as the programmer wants to run them.

1. Your program contains code that must give the user a 60 second warning before the computer is restarted for updates. What programming technique should be used to make this code more efficient? Why?

You should use a WHILE loop because while the computer wants to restart, display the 60 seconds warning.

1. What is the main benefit of using conditional statements in your code?

When a computer program is executing, it may come to a place in the code where a decision has to be made. You can accomplish this by implementing conditional statements in your code. A Conditional statement is a piece of code that will execute only if the circumstances in the controlling condition are met.

1. List the three pieces of information that must be collected for each bid in Chapter 3, Case Assignment #3, Schmitt AuctionHaus.

The three pieces of information that must be collected is the bidders ID, the amount for the bid, and the time the bid was placed.

1. Explain how an IF statement is different from an IF…ELSE statement.

In an IF statement, the code will only execute IF the condition defined in the Boolean statement is TRUE. When using IF statements it is possible, however, to make the program execute one set of code if the condition is TRUE and another if the condition is FALSE. To do this you need an IF Else statement.

1. What is the main benefit of using nested IF… Else statements in your code?

JavaScript provides you with the ability to combine conditional statements if there is more than one possible condition to be evaluated. This process is known as nesting conditional statements. As a result the code will run only if the specified combination of conditions is met.

1. How is a SWITCH/CASE statement different from a nested conditional statement?

A SWITCH/CASE statement is a conditional statement that looks for matches provided in the value in the expression. A nested conditional statement is combining conditional statements if there is more than one possible condition to be evaluated.

1. Case #2, VoterWeb uses bar charts to represent data. Explain how the length of each bar in the chart will be determined.

The length of each bar will be determined in the array length. In the array length, you will specify how long you want the bar graph to be.

1. A block of your code is supposed to search for a user’s bank account number in order to confirm that the account is active. Explain what would make this code execute more efficiently and why?

Using the break command will make it more efficient because a bank account number is unique; therefore, there is only one bank account number to look for. Once you find that number, you can stop the whole execution of the code since there is nothing else to be looking for.

1. What is needed in your code to allow case statements to look for multiple matches?

To look for multiple matches, you can use the continue command. When you find one match, that iteration can stop, and you can move onto the next one.

1. Describe the purpose of the continue command. Explain how it could be used with a statement label.

The continue command stop the commands in the current iteration. A label can be used in conjunction with the break command or the continue command in order to tell the program where to go next.

1. Describe the business objective and the project objective of the AIG Project #3 that you have completed with the chapter 3 case assignments.

The objective is to produce a quote based on what the user has entered using conditional statements.

1. Analyze the code sample below. What is it? Explain in detail what it is going to do and provide the final output.

var x = new Array(“C”, “A”, “B”,“D”,“E”);

x.sort();

var y = x.slice(0, 3);

document.write(y[1]);

This is an array that will sort the data in ascending order. The values 0 and 3 are removed. The outcome will be A, B, E

1. Describe the main difference between Chapter 3 Case Assignment #4, Skyweb and the old version of this web page that you have previously developed.

The main difference is the old sky web didn’t have the pictures of the phases of the moon on the bottom. The new sky web has the phases of the moon on the bottom. That is produced using arrays.

1. Analyze the code sample below. What is it? Explain in detail what it is going to do.

do {

var UserChoice = prompt(“Please enter a number from 1 to 9”);

}

while(UserChoice < 1 || UserChoice > 9)

This is a DO/WHILE Loop. It is going to prompt the user “Please enter a number from 1 to 9”. The user must type in a value between 1 and 9, or the prompt will keep executing.

1. Analyze the code sample below. What is it? Explain in detail what it is going to do **and provide the final output** assuming that OrigBal=600, Deposits = 400 and Debits = 900.

var AcctBal = OrigBal + Deposits – Debits;

if (AcctBal <= 0) {

alert(“ACCOUNT OUT OF FUNDS!”);

}

else {

if (AcctBal <= 100) alert(“Warning: Balance is low…”);

document.write(AcctBal);

}

else {

document.write(“Account is in good standing…”);

document.write(AcctBal);

}

This is a IF/ELSE conditional statement. This will assign the variable AcctBal to variables OrigBal + Deposits – Debits. If the variable AcctBal is less than or equal to 0, an alert will pop up saying “ACCOUNT OUT OF FUNDS!” If the input is less than or equal to 100, an alert will pop up saying “Warning: Balance is low…” and the AcctBal you entered will show up on the screen. If the input is above 100, then “Account is in good standing…” and the AcctBal you entered will show up on the screen. The account balance is 100. The output will be an alert saying “Warning: Balance is low…”

1. Analyze the code sample below. What is it? Explain in detail what it is going to do and provide the final output.

for (i=0;i<=10;i++)  
{  
x=i%2;

if (x > 0) continue;  
else document.write(i);  
}

This is a FOR loop. This will run 10 times. X is equal to the value of I divided by 2. If x is greater than 0, the current iteration will stop and it will move onto the next iteration. If not, the value of i will show on the screen.

1. Analyze the code sample below assuming that the array contains 100 elements at runtime. Circle 5 major errors in the code and explain how each one is going to impact the program.

//user\_input\_prompt

var UserInput=prompt(“Enter the desired user name here please”);

for (var i=0; i < list.length; i--) {

if (list[i] = UserInput) {

document.write(“Sorry, choose again please.”);

//break user\_input;

} else if (list[i] = null) continue**;**

} else if (i=list.length){

document.write (“Congratulations, this user name is available”);

}

}

1. That variable is not the same as the variable declared above.
2. The “var” before i is not suppose to be there.
3. List.length is not specified in the beginning.
4. UserInput is different than the variable declared, User\_Input.
5. List.length is not declared.
6. Analyze the code sample below. What is it? Explain in detail what it is going to do and provide the final output.

var a = new Date();

var b = a.getMonth()+1;

switch (b) {

case “1”: alert(“Happy New Year”);

break;

case “2”: alert(“Happy Presidents Day”);

break;

case “3”: alert(“Spring Begins”);

break;

case “4”: alert(“Spring Break”);

break;

case “5”: alert(“Happy Memorial Day”);

break;

default: alert(“Have a nice day…”);

}

This is switch statement. This will alert the user, depending on the day it currently is. If it is presidents day, the user will see an alert saying “Happy Presidents Day” And so on for each holiday. Once the holiday is identified, the whole execution will stop.

1. Analyze the code sample below. What is it? Explain in detail what it is going to do.

function x(y, z){

return y-z;

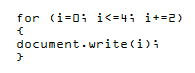
}

var a = new Array();

a.sort(x);

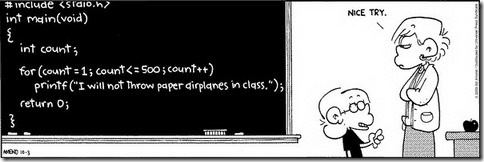
This is an array. This will return the value of y-z on the screen. The name of the new array is a. The array will be sorted in ascending order; however the result wouldn’t be organized. If you want the array to look organized in rows and columns, you have to make a table.

1. Analyze the code sample below. What is it? How many times is it going to execute and why? Provide the final output.



This is a FOR loop. This is going to execute 6 times because 4+2 = 6. The final output would be iiiiii.

**BONUS QUESTION (5 points) - Explain what is happening in the cartoon below:**



In this cartoon, a FOR loop is created. “I will not throw paper airplanes in class” will be printed if the return value is 0. Therefore, nothing will ever print. The kid will still throw paper airplanes in class. He confused his teacher!

**YOU HAVE REACHED THE END OF THE TEST**