Cross-Platform Mobile Application Development

Lab 3 JavaScript

If you are using the following website to write your JavaScript code: https://jsbin.com/?js,console, you should put the following line at the start of any program that has a loop in it `//noprotect`.
You should save all your work yourself.

1. Write a JavaScript program that prints out every 3rd letter of the alphabet.

```
var alph =["a","b","c","d","e","f","g","h","i"];

for(var i=2;i<10;i+=3)
 {
   console.log(alph[i]);
 }
```

2. Write a JavaScript program that prints out in a string in reverse. E.g. the string was "Hello World" the output would be "dlroW olleH".

```
var name="Hello World";
var rev="";

for(var i=name.length-1;i>=0;i--)
 {
   rev += name[i];
 }

console.log(rev);
```

3. Write a JavaScript program that asks the user to enter a number until he or she enters -1. When -1 is entered all numbers previously entered by the user (but not -1) should be added together and the result displayed to the user.

Assume the user will always enter a valid positive integer for addition.

```
var num=0;
var total=0;

for (var i=1; num!=-1;i++)
 {
   num=parseInt(prompt("Enter number"));
   if(num!=-1)
     {total=(total+num);}
   //noprotect
 }
console.log(total);
```

4. Write a JavaScript program that has a function called max() that takes two numbers as arguments and returns the largest of them.
   The numbers can be hard-coded in the program.

```
function max (a,b)
{
 if (a>b)
   {return a;}
 else if(b>a)
   {return b;}
 else
   return "Both nums are the same";
}

console.log(max (22,22));
```

5. Update the program in the previous question so that the numbers are entered by the user. The numbers should be within the range 1 to 100. If the numbers are outside this range (or invalid numbers – NaN) the user should be given the opportunity to re-enter them until he or she enters two valid numbers.

If the user presses Cancel at any time the program should end without performing the max() function.

```
function max (num1,num2)
{
 if (num1>num2)
   {return num1;}
 else if(num2>num1)
   {return num2;}
 else
   return "Both nums are the same";
}

var num1=parseInt(prompt("Please enter a number between 1 and 100"));
var num2=parseInt(prompt("Please enter a 2nd number between 1 and 100"));


while (isNaN(num1) || isNaN(num2) || num1>100 || num1<1 || num2>100 ||
num2<1)
 {
   if (num1===null || num2===null)
     {break;}
   alert("Invalid input.a Please enter whole numbers between 1 and 100");
   var num1=parseInt(prompt("Please enter a number between 1 and 100"));
   var num2=parseInt(prompt("Please enter a 2nd number between 1 and 100"));
   //noprotect
 }
 if (num1!=null && num2!=null)
 {
   console.log("The max of "+num1+" and "+num2+" is "+max(num1,num2));
 }
```

6. Write a JavaScript program that generates a random number between 1 and a user-specified number. Make sure the user enters a valid number for this.
   Give the user 5 guesses (informing him each time of the number of guesses left) to guess the random number.
   If the user gets the answer right tell him or her how many guesses it took him or her.

If the user presses cancel at any time the program should exit.
Assume the user always enters a valid guess (i.e. always an integer, never NaN).

```
var upperlimit=parseInt(prompt("Please enter the max
range for the random number generator! It has to be
more then 1"));
var randomnum =
Math.floor(Math.random()*upperlimit+1);

if (upperlimit<=1)
  {
    alert("The upperlimit has to be greather then
1");
  }

else if(isNaN(randomnum))
  {alert("User canceled");}
else
{
  for(var i=5; i>0; i--)
  {
    var usernum = parseInt(prompt("Have a guess what
the number is!!"));
    if(isNaN(usernum)) {alert("User canceled");
break;}
    if(usernum===randomnum)
      {
        if(i===5)
        {
          alert("You guessed right\nThe number was
"+usernum+"\nIt took you One guess!!");
          break;
        }
        else{alert("You guessed right\nThe number
was "+usernum+"\nYou had "+i+" guesses let!!");}
        break;
      }
  else
  {
    alert("You guessed wrong\nYou have "+(i-1)+"
guesses left!!");
  }
  }
}
//noprotect
```

```
console.log("random num = "+randomnum+" Upperlimit =
"+upperlimit+" user = "+usernum);
```

7. Write a JavaScript program that allows a user to enter a month from 1-12. If he or she enters a valid month, the name of the month corresponding to the number along with the number of days in the month should be displayed.
   var month=parseInt(prompt("Please enter a month from (1-12)"));

```
switch (month)
 {

case 1:console.log("January 31");break;
case 2:console.log("February 29");break;
case 3:console.log("March 31");break;
case 4:console.log("April 30");break;
case 5:console.log("May 31");break;
case 6:console.log("June 30");break;
case 7:console.log("July 31");break;
case 8:console.log("August 31");break;
case 9:console.log("September 30");break;
case 10:console.log("October 31");break;
case 11:console.log("November 30");break;
case 12:console.log("December 31");break;
   default:console.log("Invalid input!! You did not enter a month from (1-12)");
 }
```

8. A cipher, or code, is used to make a message secret. The Caesar cipher is a type of substitution cipher in which each letter in the plaintext is 'shifted' a certain number of places down the alphabet. For example, with a shift of 1, A would be replaced by B, B would become C, and so on. “Hello World” would become “ifmmp xpsme”.

   With a shift of 20, A would be replaced by U, B would become V, Z would become T, and so on. “Hello World would become "byffi qilfx".

Write a JavaScript program that allows a user to enter the shift number (1-25) and the text to be encoded, and displays the encoded text.

If the user enters the encoded text, the plaintext (unencoded text) should be displayed.

```
/*var shiftnum=parseInt(prompt("Please enter the shift num for your cipher
(1-25)"));
var ptext=prompt("Please enter the text to be encoded");
var
alph=["a","b","c","d","e","f","g","h","i","j","k","l","m","n","o","p","q","r","s","
t","u","v","w","x","y","z"];
*/
var encode = function(ptext)
{
  var textarray=ptext.split("");
  console.log(textarray);
  var arraytext=textarray.join("");
  console.log(arraytext);

};

encode("james");
```