# **Assignments**

| 1. Accept a char input from the user and display it on the console. |
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| *Code of the program & screenshot of the output.* |
| 2. Accept two inputs from the user and output their sum.   | **Variable** | **Data Type** | | --- | --- | | Number 1 | Integer | | Number 2 | Float | | Sum | Float | |
| *Code of the program & screenshot of the output.* |
| 3. Write a program to find the simple interest.   * 1. Program should accept 3 inputs from the user and calculate simple interest for the given inputs. Formula: SI=(P\*R\*n)/100)  | **Variable** | **Data Type** | | --- | --- | | Principal amount (P) | Integer | | Interest rate (R) | Float | | Number of years (n) | Float | | Simple Interest (SI) | Float | |
| *Code of the program & screenshot of the output.* |
| 4. Write a program to check whether a student has passed or failed in a subject after he or she enters their mark (pass mark for a subject is 50 out of 100).   1. Program should accept an input from the user and output a message as “Passed” or “Failed”  | **Variable** | **Data type** | | --- | --- | | mark | float | |
| *Code of the program & screenshot of the output.* |
| 5. Write a program to show the grade obtained by a student after he/she enters their total mark percentage.   1. Program should accept an input from the user and display their grade as follows  | **Mark** | **Grade** | | --- | --- | | > 90 | A | | 80-89 | B | | 70-79 | C | | 60-69 | D | | 50-59 | E | | < 50 | Failed |  | **Variable** | **Data type** | | --- | --- | | Total mark | float | |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var mark=parseFloat(read.question("Enter your mark: "));  var grade;  if(mark>90){  grade="A";  }else if(mark>=80){  grade="B";  }else if(mark>=70){  grade="C";  }else if(mark>=60){  grade="D";  }else if(mark>=50){  grade="E";  }else{  grade="Failed";  }  console.log("Your grade is: "+grade); |
| 6. Using the ‘switch case’ write a program to accept an input number from the user and output the day as follows.   | **Input** | **Output** | | --- | --- | | 1 | Sunday | | 2 | Monday | | 3 | Tuesday | | 4 | Wednesday | | 5 | Thursday | | 6 | Friday | | 7 | Saturday | | Any other input | Invalid Entry | |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var num=parseInt(read.question("Enter a number 1-7: "));  var day;  switch(num){  case 1:  day="Sunday";  break;  case 2:  day="Monday";  break;  case 3:  day="Tuesday";  break;  case 4:  day="Wednesday";  break;  case 5:  day="Thursday";  break;  case 6:  day="Friday";  break;  case 7:  day="Saturday";  break;  default:  day="Invalid Entry";  }  console.log("Selected day is: "+day); |
| 7. Write a program to print the multiplication table of given numbers.   1. Accept an input from the user and display its multiplication table   Eg:  **Output**: Enter a number  **Input**: 5  **Output**:  1 x 5 = 5  2 x 5 = 10  3 x 5 = 15  4 x 5 = 20  5 x 5 = 25  6 x 5 = 30  7 x 5 = 35  8 x 5 = 40  9 x 5 = 45  10 x 5 = 50 |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var num=parseInt(read.question("Enter a number: "));  for(var i=1;i<=10;i++){  console.log(i+"x"+num+" = "+i\*num);  } |
| 8. Write a program to find the sum of all the odd numbers for a given limit   1. Program should accept an input as limit from the user and display the sum of all the odd numbers within that limit   For example if the input limit is 10 then the result is 1+3+5+7+9 = 25  **Output**: Enter a limit  **Input**: 10  **Output**: Sum of odd numbers = 25 |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var limit=parseInt(read.question("Enter a limit: "));  var sum=0;  for(i=1;i<limit;i=i+2){  sum+=i;  }  console.log("Sum of odd numbers is "+sum); |
| 9. Write a program to print the following pattern (**hint**: use nested loop)  1  1 2  1 2 3  1 2 3 4  1 2 3 4 5 |
| *Code of the program & screenshot of the output.*  var limit=5;  for(var i=1;i<=limit;i++){  var string="";  for(var j=1;j<=i;j++){  string+=j;  }  console.log(string);  } |
| 10. Write a program to interchange the values of two arrays.   1. Program should accept an array from the user, swap the values of two arrays and display it on the console   Eg: **Output**: Enter the size of arrays  **Input**: 5  **Output**: Enter the values of Array 1  **Input**: 10, 20, 30, 40, 50  **Output**: Enter the values of Array 2  **Input**: 15, 25, 35, 45, 55  **Output**: Arrays after swapping:  Array1: 15, 25, 35, 45, 55  Array2: 10, 20, 30, 40, 50 |
| var read=require('readline-sync');  var array1=[],array2=[];  var i,temp=0;  var limit=parseInt(read.question("Enter the size of arrays: "));  console.log("Enter the values of Array 1");  for(i=0;i<limit;i++){  array1[i]=read.question();  }  console.log("Enter the values of Array 2");  for(i=0;i<limit;i++){  array2[i]=read.question();  }  var temp=array1;  array1=array2;  array2=temp;  console.log("Arrays after swapping\nArray 1: "+array1);  console.log("Array 2: "+array2) |
| 11. Write a program to find the number of even numbers in an array   1. Program should accept an array and display the number of even numbers contained in that array   Eg: **Output**: Enter the size of an array  **Input**: 5  **Output:** Enter the values of array  **Input:** 11, 20, 34, 50, 33  **Output:** Number of even numbers in the given array is 3 |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var i,sum=0;  var array=[]  var limit=parseInt(read.question("Enter the size of array:"));  console.log("Enter the values of Array");  for(i=0;i<limit;i++){  array[i]=read.question();  if(array[i]%2==0){  sum++;  }  }  console.log("Number of even numbers the given array is "+sum); |
| 12. Write a program to sort an array in descending order   1. Program should accept and array, sort the array values in descending order and display it   Eg: **Output**: Enter the size of an array  **Input**: 5  **Output**: Enter the values of array  **Input**: 20, 10, 50, 30, 40  **Output**: Sorted array:  50, 40, 30, 20, 10 |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var array=[]  var i,j,temp;  var limit=parseInt(read.question("Enter the size of an array:"));  console.log("Enter the values of Array");  for(i=0;i<limit;i++){  array[i]=read.question();  }  for(i=0;i<limit-1;i++){  for(j=i+1;j<limit;j++){  if(array[i]<array[j]){  temp=array[i];  array[i]=array[j];  array[j]=temp;  }  }  }  console.log("Sorted array:"+array); |
| 13. Write a program to identify whether a string is a palindrome or not   1. A string is a palindrome if it reads the same backward or forward eg: MALAYALAM   Program should accept a string and display whether the string is a palindrome or not  Eg: **Output**: Enter a string  **Input**: MALAYALAM  **Output**: Entered string is a palindrome  Eg 2: **Output**: Enter a string  **Input**: HELLO  **Output**: Entered string is not a palindrome |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var name=read.question("Enter a string: ");  var rev=name.split("").reverse().join("");  if(name==rev){  console.log("Entered string is a palindrome");  }else{  console.log("Entered string is not a palindrom")  } |
| 14. Write a program to add to two dimensional arrays   1. Program should accept two 2D arrays and display its sum   Eg: **Output**: Enter the size of arrays  **Input**: 3  **Output**: Enter the values of array 1  **Input**:  1 2 3  4 5 6  7 8 9  **Output**: Enter the values of array 2  **Input**:  10 20 30  40 50 60  70 80 90  **Output**: Sum of 2 arrays is:  11 22 33  44 55 66  77 88 99 |
| *Code of the program & screenshot of the output.*  let num=require('readline-sync')  let size=parseInt(num.question('Enter the size of arrays:'))  var arr1= [],arr2=[],sum=[]  console.log('Enter the values of Array 1')  for (var i = 0; i < size; i++) {  arr1.push([])  for (var j = 0; j <size; j++) {  arr1[i][j] =parseInt (num.question());  }  }  console.log('Enter the values of Array 2')  for (var i = 0; i < size; i++) {  arr2.push([])  for (var j = 0; j <size; j++) {  arr2[i][j] =parseInt (num.question());  }  }  for (var i = 0; i < size; i++) {  sum.push([])  for (var j = 0; j <size; j++) {  sum[i][j]=arr1[i][j]+arr2[i][j]  }  }  console.log("sum of two arrays:")  for (var i = 0; i < size; i++) {  console.log(sum[i])  } |
| 15. Write a program to accept an array and display it on the console using functions   1. Program should contain 3 functions including main() function   **main()**   1. Declare an array 2. Call function getArray() 3. Call function displayArray()   **getArray()**   1. Get values to the array   **displayArray()**   1. Display the array values |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync')  array=[];  let limit=parseInt(read.question('Enter the size of arrays:'));  main();  function main(){  getArray(limit);  displayArray();  }  function getArray(lim){  console.log("Enter the values");  for(var i=0;i<lim;i++){  array[i]=parseInt(read.question());  }  }  function displayArray(){  console.log("Entered Array is: "+array)  } |
| 16. Write a program to check whether a given number is prime or not   1. Program should accept an input from the user and display whether the number is prime or not   Eg: **Output**: Enter a number  **Input**: 7  **Output**: Entered number is a Prime number |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var count=0;  var num=parseInt(read.question("Enter a number: "));  for(let i=1;i<=num;i++){  if(num%i==0){  count++;  }  }  if(count==2){  console.log("Entered number is Prime number")  }else{  console.log("Entered number is not a Prime number")  } |
| 17. Write a menu driven program to do the basic mathematical operations such as addition, subtraction, multiplication and division (**hint**: use if else ladder or switch)   1. Program should have 4 functions named addition(), subtraction(), multiplication() and division() 2. Should create a class object and call the appropriate function as user prefers in the main function |
| *Code of the program & screenshot of the output.*  var read=require("readline-sync");  class Mathamatics{  addition = (num1,num2) =>(num1+num2)  substraction = (num1,num2) =>(num1-num2)  multipication = (num1,num2) =>(num1\*num2)  division = (num1,num2) =>(num1/num2)  }  var result;  var test=new Mathamatics;  var num1=parseInt(read.question("Enter two numbers: "));  var num2=parseInt(read.question());  var num=parseInt(read.question( "1 for addition \n2 for subtraction \n3 for multiplication \n4 for division \nEnter your choice : "))  if(num==1){  result=test.addition(num1,num2);  }else if(num==2){  result=test.substraction(num1,num2);  }else if(num==3){  result=test.multipication(num1,num2);  }else if(num==4){  result=test.division(num1,num2);  }else{  result="Invalid Entry";  }  console.log("Result is: "+result); |
| 18. Grades are computed using a weighted average. Suppose that the written test counts 70%, lab exams 20% and assignments 10%.  If Arun has a score of  Written test = 81  Lab exams = 68  Assignments = 92  Arun’s overall grade = (81x70)/100 + (68x20)/100 + (92x10)/100 = 79.5  Write a program to find the grade of a student during his academic year.   * 1. Program should accept the scores for written test, lab exams and assignments   2. Output the grade of a student (using weighted average)   Eg:  Enter the marks scored by the students  Written test = 55  Lab exams = 73  Assignments = 87  Grade of the student is 61.8 |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  console.log("Enter the marks scored by the students");  var mark1=parseInt(read.question("Written test: "));  var mark2=parseInt(read.question("Lab Exams: "));  var mark3=parseInt(read.question("Assignments: "));  grade=((mark1\*70)+(mark2\*20)+(mark3\*10))/100;  console.log("Grade of the student is: "+grade); |
| 19. Income tax is calculated as per the following table   | **Annual Income** | **Tax percentage** | | --- | --- | | Up to 2.5 Lakhs | No Tax | | Above 2.5 Lakhs to 5 Lakhs | 5% | | Above 5 Lakhs to 10 Lakhs | 20% | | Above 10 Lakhs to 50 Lakhs | 30% |   Write a program to find out the income tax amount of a person.   1. Program should accept annual income of a person   Output the amount of tax he has to pay  Eg 1:  Enter the annual income  495000  Income tax amount = 24750.00  Eg 2:  Enter the annual income  500000  Income tax amount = 25000.00 |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var tax;  var income=parseInt(read.question("Enter the annual income: "));  if(income<=250000){  console.log("No Tax");  }else if(income<=500000){  tax=(5\*income)/100;  }else if(income<=1000000){  tax=(20\*income)/100;  }else if(income<=5000000){  tax=(30\*income)/100;  }  if(income>250000){  console.log("Income tax amount: "+tax);  } |
| 20. Write a program to print the following pattern using for loop  1  2 3  4 5 6  7 8 9 10 |
| *Code of the program & screenshot of the output.*  let i,j,k=1,limit=4;  for(i=1;i<=limit;i++){  let string="";  for(j=1;j<=i;j++){  string+=k+" ";  k++;  }  console.log(string)  } |
| 21. Write a program to multiply the adjacent values of an array and store it in an another array   * 1. Program should accept an array   2. Multiply the adjacent values   3. Store the result into another array   Eg:  Enter the array limit  5  Enter the values of array  1 2 3 4 5  Output  2 6 12 20 |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var array=[],array1=[];  var limit,i,j;  limit=parseInt(read.question('Enter the size of arrays:'));  console.log("Enter the values of Array");  for(i=0;i<limit;i++){  array[i]=parseInt(read.question());  }  for(i=0;i<limit-1;i++){  array1[i]=array[i]\*array[i+1]  }  console.log("New Array is: "+array1); |
| 22. Write a program to add the values of two 2D arrays   1. Program should contains 3 functions including the main function   **main()**   1. Call function getArray() 2. Call function addArray() 3. Call function displayArray()   **getArray()**   1. Get values to the array   **getArray()**   1. Add array 1 and array 2   **displayArray()**   1. Display the array values   Eg:  Enter the size of array  2  Enter the values of array 1  1 2  3 4  Enter the values of array 2  5 6  7 8  Output:  Sum of array 1 and array 2:  6 8  10 12 |
| *Code of the program & screenshot of the output*  var read=require('readline-sync');  var limit,i,j;  var array1=[],array2=[],sum=[];  limit=parseInt(read.question('Enter the limit of arrays:'))  main();  function main(){  console.log("Enter the values of Array 1");  array1=getArray();  console.log("Enter the values of Array 2");  array2=getArray();  addArray();  displayArray();    }  function getArray(){  var arr=[]  for(i=0;i<limit;i++){  arr.push([]);  for (j=0;j<limit;j++) {  arr[i][j] =parseInt(read.question());  }  }  return arr;  }  function addArray(){  for(i=0;i<limit;i++) {  sum.push([])  for (j=0;j<limit;j++) {  sum[i][j]=array1[i][j]+array2[i][j]  }  }  }  function displayArray(){  console.log("Sum of Array 1 and Array 2\n");  for (i=0;i<limit;i++) {  console.log(sum[i])  }  } |
| 23. Write an object oriented program to store and display the values of a 2D array   * 1. Program should contains 3 functions including the main function   **main()**   1. Declare an array 2. Call function getArray() 3. Call function displayArray()   **getArray()**   1. Get values to the array   **displayArray()**   1. Display the array values   Eg:  Enter the size of array  3  Enter the array values  1 2 3  4 5 6  7 8 9  Array elements are:  1 2 3  4 5 6  7 8 9 |
| *Code of the program & screenshot of the output*  var read=require('readline-sync');  var limit,i,j;  var array=[];  limit=parseInt(read.question('Enter the limit of arrays:'))  main();  function main(){  array=getArray();  displayArray();    }  function getArray(){  var arr=[]  console.log("Enter the valued of Array:")  for(i=0;i<limit;i++){  arr.push([]);  for (j=0;j<limit;j++) {  arr[i][j] =parseInt(read.question());  }  }  return arr;  }  function displayArray(){  console.log("Entered Array is:");  for (i=0;i<limit;i++) {  console.log(array[i])  }  } |
| 24. Write a menu driven program to calculate the area of a given object.   * 1. Program should contain two classes      1. Class 1: MyClass      2. Class 2: Area   2. Class MyClass should inherit class Area and should contain the following functions      1. main()      2. circle()      3. square()      4. rectangle()      5. triangle()   3. Class Area should contain the following functions to calculate the area of different objects      1. circle()      2. square()      3. rectangle()      4. triangle()   Class MyClass extends Area{  public static void main(string args[]){  }  circle() {  }  square() {  }  rectangle() {  }  triangle() {  }  }  Class Area{  circle(){  }  square(){  }  rectangle() {  }  triangle() {  }  }  Eg 1:  Enter your choice   1. Circle 2. Square 3. Rectangle 4. Triangle   2  Enter the length  2  Output  Area of the square is: 4  Eg 2:  Enter your choice   1. Circle 2. Square 3. Rectangle 4. Triangle   1  Enter the radius  3  Output  Area of the circle is: 28.26 |
| *Code of the program & screenshot of the output*  var read=require('readline-sync');  class Area{  circle(){  var r=parseInt(read.question("Enter the radius: "));  console.log("Area of circle is: "+(3.14\*r\*r));  }  square(){  var l=parseInt(read.question("Enter the length: "));  console.log("Area of square is: "+(l\*l));  }  rectangle(){  var l=parseInt(read.question("Enter the length: "));  var b=parseInt(read.question("Enter the breadth: "));  console.log("Area of rectangle is: "+(l\*b));  }  triangle(){  var b=parseInt(read.question("Enter the base: "));  var h=parseInt(read.question("Enter the height: "));  console.log("Area of triangle is: "+(b\*h\*0.5));  }  }  class Myclass extends Area{  constructor(){  super();  }  }  var result=new Myclass  var choice=parseInt(read.question("Enter your choice\n1.Circle\n2.Square\n3.Rectangle\n4.Triangle\n"));  if(choice==1){  result.circle();  }else if(choice==2){  result.square();  }else if(choice==3){  result.rectangle();  }else if(choice==4){  result.triangle();  }else{  console.log("Invalid Entry");  } |
| 25. Write a Javascript program to display the status (I.e. display book name, author name & reading status) of books. You are given an object library in the code's template. It contains a list of books with the above mentioned properties.Your task is to display the following:   * If the book is unread: You still need to read '<book\_name>' by <author\_name>. * If the book is read: Already read '<book\_name>' by <author\_name>.   var library = [  {  title: 'Bill Gates',  author: 'The Road Ahead',  readingStatus: true  },  {  title: 'Steve Jobs',  author: 'Walter Isaacson',  readingStatus: true  },  {  title: 'Mockingjay: The Final Book of The Hunger Games',  author: 'Suzanne Collins',  readingStatus: false  }  ]; |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var library = [  {  title: 'Bill Gates',  author: 'The Road Ahead',  readingStatus: true  },  {  title: 'Steve Jobs',  author: 'Walter Isaacson',  readingStatus: true  },  {  title: 'Mockingjay: The Final Book of The Hunger Games',  author: 'Suzanne Collins',  readingStatus: false  }  ];  for(var i=0;i<library.length;i++){  if(library[i].readingStatus==true){  console.log("Already read "+library[i].title+" by "+library[i].author)  }else{  console.log("You still need to read "+library[i].title+" by "+library[i].author)  }  } |
| 26. Given a variable named my\_string, *try* reversing the string using my\_string.split().reverse().join() and then print the reversed string to the console. If the *try* clause has an error, print the error message to the console. Finally, print the *typeof* of the my\_string variable to the console.  **Output format:**  The statement to print in the *try*block is:  ***Reversed string is : ${my\_string}***  The statement to print in the *catch*block is:  ***Error : ${err.message}***  The statement to print in the *finally* block is:  ***Type of my\_string is : ${typeof my\_string}***  Eg:  **a) Sample Input 0**  "1234"  **Sample Output 0**  Reversed string is : 4321  Type of my\_string is : string  **b) Sample Input 1**  Number(1234)  **Sample Output 1**  Error : my\_string.split is not a function  Type of my\_string is : number |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var my\_string=1234  try{  console.log("Reversed string is: "+my\_string.split("").reverse().join(""))  }  catch(err){  console.log("input is "+err)  }  finally{  console.log("The type of my\_string is: "+typeof(my\_string))  } |
| 27. Given a variable named my\_height, you must throw errors under the following conditions:   * notANumberError- When my\_heightis NaN * HugeHeightError – When my\_heightis greater than * TinyHeight Error - When my\_heightis less than   Eg:  **a) Sample Input 0**  seven  **Sample Output 0**  notANumberError  **b) Sample Input 1**  77  **Sample Output 1**  hugeHeightError  **c) Sample Input 2**  0  **Sample Output 2**  tinyHeightError  **d) Sample Input 3**  8    **Sample Output 3**    8 |
| *Code of the program & screenshot of the output.*  var my\_height=8;  try {  if(isNaN(my\_height)) throw "notANumberError";  if(my\_height < 1) throw "tinyHeightError";  if(my\_height > 10) throw "hugeHeightError";  console.log(my\_height)  }  catch(err) {  console.log(err);  } |
| 28. Create a constructor function that satisfies the following conditions:   1. The name of the constructor function should be *Car*. 2. It should take three parameters: *name, mileage* and *max\_speed*. 3. Store these parameter values in their respective *this*keywords: *this.name, this.mileage* and *this.max\_speed*. |
| *Code of the program & screenshot of the output.*  function Car(name,mileage,max\_speed){  this.name = name  this.mileage = mileage  this.max\_speed = max\_speed  }  const car1=new Car("i20",18,140);  const car2=new Car("Swift",22,110);  const car3=new Car("Alto",25,100)  console.log(car1)  console.log(car2)  console.log(car3) |
| 29. Write a myFilter function that takes 2 parameters: myArray and callback. Here, myArray is an array of numbers and callback is a function that takes the elements of myArray as its parameter and returns a boolean true if the sum of the number is even or false if the sum of the number is odd.  The myFilter function should return the sum of the array.   1. **Sample Input**   12345   1. **Sample Output**   15 |
| *Code of the program & screenshot of the output.*  var read=require('readline-sync');  var myArray=[];  var i,limit,sum;  limit=parseInt(read.question("Enter the limit: "));  console.log("Enter the values")  for(i=0;i<limit;i++){  myArray[i]=parseInt(read.question());  }  var a=myFIlter(myArray,callback);  callback(a);  function myFIlter(myArray,callback){  sum=0;  for(i=0;i<limit;i++){  sum=sum+myArray[i]  }  console.log("Sum is: "+sum);  return sum;  }  function callback(sum){  console.log("sum is even:"+(sum%2==0))  } |