FOP PRACTICAL 1 SUGGESTED SOLUTIONS

Q1a

console.log("\"The quick brown fox\n\t jumps over the\n lazy dog.\"");

Q1b

console.log(" \_\_\_\_\_\_\n/ .  . \\\n|  \\/  |\n\\\_\_\_\_\_\_/");

Q1c

console.log("I've tried so hard\nand got so far and\nin the end it doesn't\neven matter.");

Q2(a)     n@m3 -> invalid [Reason : @ not allowed]

(b)     while -> invalid [Reason : reserved word]

(c)     1234Hi5-> invalid [Reason : cannot start with a digit]

(d)     $I\_\_I$ -> valid

(e)     P0ck3t --> valid

(f)     Mr. Molly --> invalid [Reason: . & space not allowed]

(g)     switch --> reserved word

(h)     \_MannerMakesMan --> valid

Q3(a)     Mailing Address : String

(b)     Body Mass Index (BMI) : Floating Point

(c)     Credit Card Number (16 digits) : Integer

(d)     Is a year a leap year : Boolean

(e)     Amount of Water in Water Bottle : Floating Point

(f)     Does password contains at least 8 characters :Boolean

(g)     Movie Title & Director : String

(h)     Year Published of a Book : Integer

Q4a

Output:

5

……………………………………………………………………………….

Q4b

Output:

5

Q4c

Output:

undefined

Q4d

Output is a string:

z

Q5

console.log("Module Code\\Name: ST0502\\\"Fundamentals of Programming\"");

console.log("\tCA 1\t\t:40%\n\tCA 2\t\t:20%\n\tExam\t\t:40%\n\tTotal---------->:100%");

FOP PRACTICAL 2 SUGGESTED SOLUTIONS

Q1a : Answer 6

Q1b : Answer 2.4285714285714284

Qc : Answer 0

Qd : Answer 16

Q1e : Answer 1

Q1f : Answer 2.66666667

Q1g : Answer 5

Q1h : Answer 4

Q2

console.log(5 \* 20 + 7 % 6);          // Output: 101

console.log("FOP" + "is" + "fun!");   // Output: FOPisfun!

console.log(1 + "abcd");              // Output: 1abcd

console.log("abcd " + 1);              // Output: abcd 1

console.log(1 + 1 + " abcd ");         // Output: 2 abcd

console.log(1 + " abcd " + 1);        // Output: 1 abcd 1

console.log("abcd " + 1 + 1);          // Output: abcd 11

console.log(1 + "ab" + (1 + 1));      // Output: 1ab2

Q3

Q3a : Answer : false

Q3b : Answer : true

Q3c : Answer : false

Q3d : Answer : true

Q3e : Answer : true

Q3f : Answer : true

Q3g : Answer : true

Q3h : Answer : true

Q3i : Answer : false

Q4

console.log(b1 && b2 || b3);        //Answer true

console.log(++a2 >= a3--);          //Answer true

console.log(a1 == a2++ % a3);       //Answer true

console.log("a1 = " + a1);          // a1 = 1

console.log("a2 = " + a2);          // a2 = 4

console.log("a3 = " + a3);          // a3 = 2

Q5a

var \_them = 'true',     //Nothing wrong with comma here

    \_them = 5;

console.log('\_them);    //Syntax error, missing')

Q5b :Infinity

Q5c : pi is constant so can’t change value

Q6a :

b

Q6b Output printed vertically:

c

d

e

Q6c Output printed vertically:

f

g

Q7

var x = 20;

var y = 5;

var z = x \* y;

console.log("x\t: " + x + "\ny\t: " + y + "\nz\t: " + z);

Q8

var input = require('readline-sync');

var userName = input.question("Enter your name:");

console.log(userName + " loves Programming!");

var userColor = input.question("Enter your favourite color :");

console.log(userName + " loves Programming & " + userColor + " color");

Q9

var input = require("readline-sync");

var tempF = 0;

tempF = parseFloat(input.question("Enter Temperature in Fahrenheit: "));

tempC = ((5 / 9) \* (tempF - 32))

if ((tempC >= 20) && (tempC <= 25)) {

    console.log("The current room temperature is " + tempC.toFixed(0) + " degrees Celsius.");

}

Q10

var input = require('readline-sync');

var num1 = parseInt(input.question("Enter first number: "));

var num2 = parseInt(input.question("Enter second number: "));

console.log("\nHere are the results...\n");

console.log(num1 + " + " + num2 + " = " + (num1 + num2));

console.log(num1 + " divisible by " + num2 + "? " + (num1 % num2==0));

Q11

var year1 = 1996, year2 = 1900;

//check for given year

isLeapYear = (year1 % 4 == 0) && (year1 % 100 != 0) || (year1 % 400 == 0);

console.log(year1 + " is a leap year? " + isLeapYear);

//check for another year

isLeapYear = (year2 % 4 == 0) && (year2 % 100 != 0) || (year2 % 400 == 0);

console.log(year2 + " is a leap year? " + isLeapYear);

Q12

var increment = 0;

var newSalary = 0;

var salary;

console.log("Welcome to this apps for computing new salary.");

input = require('readline-sync');

var username = input.question("Please enter your name : ");

//var num2 = input.question("Enter second number: ");

console.log("Hello " + username + "!");

var userInput = input.question("Please enter your current salary : ");

salary = parseFloat(userInput)

if (salary < 1000)

    increment = 0.2 \* salary;

if ((salary >= 1000) && (salary < 2000))

    increment = 0.15 \* salary;

if (salary >= 2000)

    increment = 0.10 \* salary;

newSalary = increment + salary;

console.log("Current Salary\t\Increment\tNew Salary");

console.log("$" + salary + "\t\t$" + increment + "\t\t$" + newSalary);

O P T I O N A L       Q U E S T I O N S

Q12.

const readline = require('readline-sync');

var x1 = parseInt(readline.question('Enter X1: '));

var y1 = parseInt(readline.question('Enter Y1: '));

var x2 = parseInt(readline.question('Enter X2: '));

var y2 = parseInt(readline.question('Enter Y2: '));

var dist = Math.sqrt((x2 - x1) \*\* 2 + (y2 - y1) \*\* 2); //Alternative statement var dist = ((x2 - x1) \*\* 2 + (y2 - y1) \*\* 2) \*\* 0.5;

console.log(`The distance between (${x1},${y1}) and (${x2}, ${y2}) is ${dist.toFixed(4)}.`); //variables referred in back ticks are enclosed in {}

Q13.

const readline = require('readline-sync');

var angle1 = parseInt(readline.question('First Angle: '));

var angle2 = parseInt(readline.question('Second Angle: '));

console.log(`The third angle is ${180 - angle1 - angle2} degrees.`);

//calculations with variables in back ticks are enclosed in {}

Q14.

const readline = require('readline-sync');

var amt = parseInt(readline.question('Enter Amount ($): '));

var numOf1000 = amt / 1000;

amt %= 1000;

console.log(`\n${Math.floor(numOf1000)} Note(s) of 1000.00`);

var numOf100 = amt / 100;

amt %= 100;

console.log(`${Math.floor(numOf100)} Note(s) of 100.00`);

var numOf50 = amt / 50;

amt %= 50;

console.log(`${Math.floor(numOf50)} Note(s) of 50.00`);

var numOf10 = amt / 10;

amt %= 10;

console.log(`${Math.floor(numOf10)} Note(s) of 10.00`);

var numOf5 = amt / 5;

amt %= 5;

console.log(`${Math.floor(numOf5)} Note(s) of 5.00`);

var numOf2 = amt / 2;

amt %= 2;

console.log(`${Math.floor(numOf2)} Note(s) of 2.00`);

var numOf1 = amt / 1;

amt %= 1;

console.log(`${Math.floor(numOf1)} Note(s) of 1.00`);

FOP PRACTICAL 3a SUGGESTED SOLUTIONS

Q1

var isWalking = true;

if (isWalking) //if (isWalking = true)

//no syntax error; assigns isWalking a value of //true and if condition evaluates to true.

    console.log("Walking");

else     //( isWalking = false );   //no condition allowed for else

    console.log("Not walking");

Q2a

Hello

Lion

Q2b

Giraffe

Liger

Q2c

Red

Yeet

Q2d

Value of w is 3

Q2e

Value of x is 5

Q2f

Value of z is 33

Q2g

Rank is : Captain

Q3a

var input = require('readline-sync');

var number1 = input.question('Please enter first number:');

var number2 = input.question('Please enter second number:');

if (isNaN(number1) || isNaN(number2)) //dealing with invalid input(s)

    console.log("Sorry wong input. Please try again. Good bye!");

else { //dealing with valid input(s)

number1 = parseInt(number1); //parseInt when dealing with valid input(s)

number2 = parseInt(number2);

    if (number1 > number2) {

        console.log("\n1st number is bigger.");

    } else {

        if (number1 == number2) {

            console.log("\n1st number is the same as 2nd number.");

        } else {

            console.log("\n2nd number is bigger.");

        }

    }

}

Q3b

Test     Input       Input

Cases    1st number  2nd number  What to test ?              Expected Results

1           x           3000        Non numeric 1st number      Error message, program exit

2           3           g           Non numeric 2nd number      Error message, program exit

3           450         450         Both equal numbers          "1st number is the same as 2nd number"

4           900         50          1st number larger           "1st number is bigger"

5           -90         45         2nd number larger           "2nd number is bigger"

6           -0         0        Both equal numbers          "1st number is the same as 2nd number"

7 -90 -45 2nd number is larger “2nd number is bigger”

8 30 No data for 1st number “Error message, program exit”

9 90 No data for 2nd number “Error message, program exit”

Q4a

var input = require('readline-sync');

var score = input.question("Please enter your score: ");

//check for numeric and score beyond 0 to 100

if (isNaN(score) || score < 0 || score > 100)

    console.log("Score is invalid. Please try again. Good bye!");

else {

score=parseInt(score);

    if (score >= 80) {

        console.log("Your grade is A");

    } else if (score >= 70) {

        console.log("Your grade is B");

    } else if (score >= 60) {

        console.log("Your grade is C");

    } else if (score >= 50) {

        console.log("Your grade is D");

    } else {

        console.log("Your grade is F");

    }

}

Q4b

// Test     Input

// Cases    score   What to test ?      Expected Results

    1         x     Non numeric         Error message, program exit

    2        -7     Negative score      Error message, program exit

    3         56    F                   F displayed

    4   ...continue with all valid data showing correct output display

    5   ...continue with all valid data showing correct output display

:

Q5a & b

var input = require('readline-sync');

var yrsOfService = input.question("Please enter your years of service: ");

var salary = input.question("Please enter your salary: ");

var increment = 0;

//check for numeric and less than 0 or negative years of service

if (isNaN(yrsOfService) || isNaN(salary) || salary <= 0 || yrsOfService <= 0)

    console.log("Sorry invalid input(s). Please try again. Good bye!");

else {

yrsOfService=parseInt(yrsOfService);

salary=parseFloat(salary);

    if (yrsOfService < 10) { //check for yrsOfService

        if (salary < 1000) {

            increment = 100

        } else if (salary < 2000) {

            increment = 200

        } else {

            increment = 300

        }

    }

    else {

        if (salary <1000) {

            increment = 200

        } else if (salary < 2000) {

            increment = 300

        } else {

            increment = 400

        }

    }

    console.log("Congratulations, your increment is: $" + increment);

}

Q5c

Test     Input   Input

Cases    Years   Salary  What to test ?      Expected Results

1        z      3000    Invalid year        Error message, program exit

2        3      gf      Invalid salary      Error message, program exit

3        0      450     Zero years          Error message, program exit

4       -6      5000    Negative years      Error message, program exit

5        8      0     Zero salary          Error message, program exit

6       9      -500    Negative salary      Error message, program exit

7        4      850     Correct increment   Increment is 100

8 2 2000 Correct increment   Increment is 300

9 5 1000 Correct increment   Increment is 200

10 7 800 Correct increment   Increment is 100

11 12 2000 Correct increment   Increment is 400

12 45 1000 Correct increment   Increment is 300

13 37 800 Correct increment   Increment is 200

Q6

var input = require('readline-sync');

var tax = 0;

var status = input.question("Please enter your C or F: ");

var annualIncome = input.question("Enter your annual income: ");

status = status.toUpperCase();      //to convert to upper case

//check for invalidity

if (((status != 'C') && (status != 'F')) || isNaN(annualIncome) || annualIncome <= 0)

    console.log("Sorry invalid input(s). Please try again. Good bye!");

else { //valid block processing

    annualIncome = parseFloat(annualIncome);

    if (status == 'C') {

        type = 'Citizen';

        if (annualIncome < 10000) {

            tax = 100;

        } else if (annualIncome <=25000) {

            tax = 0.05 \* annualIncome;

        } else {

            tax = 0.15 \* annualIncome;

        }

    }

    else {

        type = 'Foreigner';

        if (annualIncome <8000) {

            tax = 150;

        } else if (annualIncome <= 15000) {

            tax = 0.1 \* annualIncome;

        } else {

            tax = 0.2 \* annualIncome;

        }

    }

    console.log("Tax computed for " + type + " status for $" + annualIncome + " is : $" + tax);

}

Q7

var input = require('readline-sync');

var integerNum = input.question("Enter an integer: ");

if (isNan(integerNum))

console.log(“Invalid number”);

else {

integerNum=parseInt(integerNum);

if (integerNum % 5 == 0 && integerNum % 6 == 0) {

    console.log(integerNum + " is divisible by both 5 & 6.");

}

else {

    if (integerNum % 5 == 0 || integerNum % 6 == 0) {

        console.log(integerNum + " is divisible by either 5 or 6, but not both.");

    }

else {

        console.log(integerNum + " is neither divisible by either 5 or 6.");

    }

}

}

Q8

var prizeMoney = 0;

var input = require('readline-sync');

var rank = input.question("Please input your rank: ");

if (isNaN(rank) || rank <= 0)

    console.log("Input is not a valid rank.  Good bye!");

else {

rank=parseInt(rank);

    switch (rank) {

        case 1: prizeMoney = 1000;

            break;

        case 2: prizeMoney = 800;

            break;

        case 3: prizeMoney = 700;

            break;

        case 4: //there is no break statement for case 4, hence case 5 is executed

        case 5: prizeMoney = 300;

            break;

        default: prizeMoney = 20;

    }

    console.log("Prize Money: $" + prizeMoney);

}

O P T I O N A L       Q U E S T I O N S

Q9

var input = require('readline-sync');

var seater = input.question("Enter bicycle type:\n(1) Single Seater (2) Double Seater\n");

var hoursRented = input.question("Enter the number of hours rented: ");

var rent;

if(isNaN(seater) || isNan(hoursRented) || seater<=0 || hoursRented<=0)

console.log(“Invalid input.”);

else {

seater=parseInt(seater);

hoursRented=parseInt(hoursRented);

if (seater == 1) {

    rent = 5.5 \* hoursRented;

}

else {

    rent = 7.8 \* hoursRented;

}

if (hoursRented >= 3) {  //30% discount if rent for 3 hours or more

    rent = rent \* 0.7;

console.log("Total Rental Fee: $" + rent.toFixed(2));

}