

```
// jde, added 20/10/17, solutions to exercises for week3

var week3Exercises = function( exNo ) {

    function ex1() {

        function countVowels( arg ) {

            var tmp = removeVowels( arg );

            return ( arg.length - tmp.length );

        }

        function removeVowels( arg ) {

            var tmp = arg.replace(regExp, "");

            return tmp;

        }

        var vowels = 'aeiou';

        var regExp = new RegExp('[ '+vowels+' ]','g');

        var instruments = ["piano", "bongo drums", "guitar", "flute",
"double bass", "xylophone" ];

        console.log( 'remove vowels from strings' );

        for (var instrumentIndex = 0; instrumentIndex <
instruments.length; instrumentIndex++) {

            var instrument = instruments[instrumentIndex];

            var vowelsCount = countVowels( instrument );

            var instrumentWithoutVowels = removeVowels( instrument );

            console.log(vowelsCount, instrument, instrumentWithoutVowels);

        }

    }

}
```

```
    }  
};
```

```
function insertVars() {  
    var tmp = arguments[0];  
    for (var j = 1 ; j < arguments.length ; ++j) {  
        tmp = tmp.replace(new RegExp('#' + j, 'g'), arguments[j]);  
    }  
    return tmp;  
};
```

```
function ex2() {  
    var three = 3, six = 6;  
    var area = three * six;  
    console.log( insertVars( 'Area of rectangle: #1 by #2 is #3',  
three, six, area ) );  
    console.log( insertVars( '#1 divided by #2 is #3:', six, three,  
six/three ) );  
};
```

```
function ex3() {
```

```
    function circleArea( radius ) {  
        return Math.PI * radius * radius  
    }
```

```
    function circleCircumference( radius ) {  
        return 2 * Math.PI * radius;  
    }
```

```

    var tmp, radius;

    tmp = prompt("Please enter radius of circle");
    radius = parseFloat( tmp );

    console.log( circleArea( radius ), circleCircumference( radius )
);
};

```

```

function ex4() {
    function triangleArea( a, b, c ) {
        var semiPerimeter = ( a + b + c ) / 2.0;

        var area = Math.sqrt( semiPerimeter * ( semiPerimeter - a ) * (
semiPerimeter - b ) * ( semiPerimeter - c ) )

        return area;
    }
}

```

```

    var a, b, c;

    a = parseFloat( prompt("Please enter length of 1st side" ) );
    b = parseFloat( prompt("Please enter length of 2sn side" ) );
    c = parseFloat( prompt("Please enter length of 3rd side" ) );

    var area = triangleArea( a, b, c );

    console.log( area );
};

```

```

function ex5() {

    function calculateWeekendXMASDays(startYear, endYear) {
        for (var year = startYear; year <= endYear; year++) {
            var xmasDay = "December 25, " + year;

```

```

        var d = new Date(xmasDay);
        var day = d.getDay();
        if (( day == 0 ) || ( day == 6 )) console.log(year);
    }
}

```

```

function countWeekendXMASDays(startYear, endYear){
    var WDCount = 0;
    var currentYear = startYear;

    while(currentYear < endYear){
        var yearDate = new Date( "December 25, " + currentYear );
        var day = yearDate.getDay();
        if ( ( day === 0 ) || ( day == 6 ) ) {
            WDCount ++;
        }
        currentYear ++;
    }
    return WDCount;
}

```

```

console.log(calculateWeekendXMASDays(2017, 2030));
console.log(countWeekendXMASDays(2017, 2030));
};

```

```

function ex6() {
    function cToF( value ) {
        var f = ( ( value * 9.0 ) / 5.0 ) + 32;
    }
}

```

```

        return f;
    }

    function fToC( value ) {
        var c = ( ( value -32.0 ) * 5.0 ) / 9.0;
        return c;
    }

    console.log( cToF( 20 ) );
    console.log( fToC( 212 ) );
};

function ex7() {
    function largest( values ) {
        if ( typeof values !== "object" )
            return NaN;
        else {
            var i = 0;
            currentMaximum = values[ 0 ];
            for ( i = 1; i < values.length; i++ )
                if ( values[i] > currentMaximum )
                    currentMaximum = values[i];
            return currentMaximum;
        }
    }
}

var testValues = [32, 54, 34, 74, 21];
console.log( largest( testValues ) );

```

```

    console.log( largest( "my test" ) );

    console.log( largest( [32, 67, 87, 21, 1, -2] ) );

};

function ex8() {
    function isPalindrome( str ) {

        // Step 1. Use the split() method to return a new array

        var splitString = str.split(""); // eg var splitString =
        "hello".split(""); ["h", "e", "l", "l", "o"]

        // Step 2. Use the reverse() method to reverse the new created
        array

        var reverseArray = splitString.reverse(); // var reverseArray
        = ["h", "e", "l", "l", "o"].reverse(); ["o", "l", "l", "e", "h"]

        // Step 3. Use the join() method to join all elements of the
        array into a string

        var joinArray = reverseArray.join(""); // var joinArray =
        ["o", "l", "l", "e", "h"].join(""); "olleh"

        //Step 4. Return the reversed string equal to the input string

        return ( joinArray == str );

    }

    console.log( isPalindrome( "racecar" ) );

    console.log( isPalindrome( "my test" ) );

    console.log( isPalindrome( "able was I ere I saw elba" ) );

};

function ex9() {

```

```
        console.log("Not complete!");
    };

    function ex10() {
        console.log("Not complete!");
    };

    console.log( "Attempting Exercise:" + exNo );
    switch ( exNo ) {
        case 1 :
            ex1();
            break;
        case 2 :
            ex2();
            break;
        case 3 :
            ex3();
            break;
        case 4 :
            ex4();
            break;
        case 5 :
            ex5();
            break;
        case 6 :
            ex6();
            break;
        case 7 :
```

```
        ex7();  
        break;  
case 8 :  
        ex8();  
        break;  
case 9 :  
        ex9();  
        break;  
case 10 :  
        ex10();  
        break;  
}  
};
```