

Muhammad Ali

FA20-BCS-070

Mobile Application Development (MAD)

Assignment 2

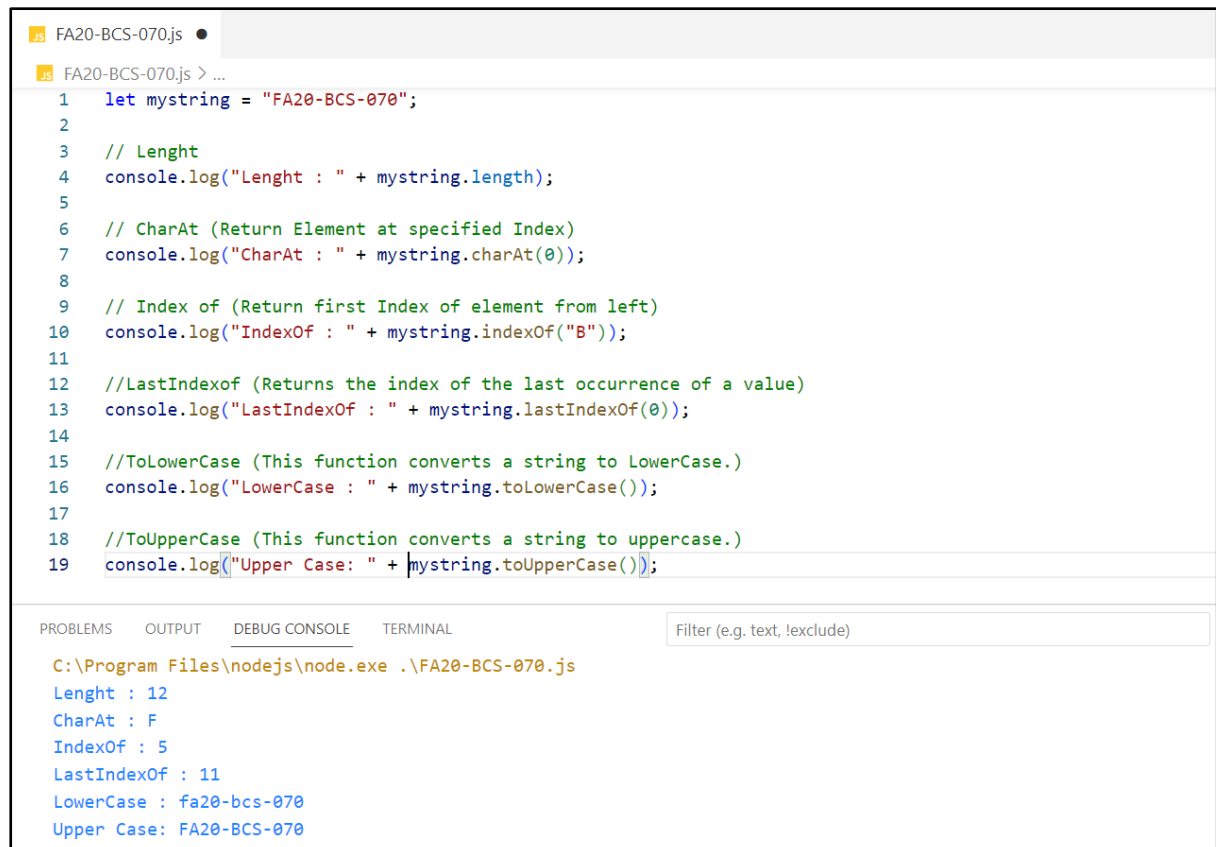
Class: 6-B

Submitted to: Mr. Muhammad Kamran

Dated: 12 April, 2023

String Built-In Functions

- **String.prototype.length:**
- **String.prototype.charAt():**
- **String.prototype.indexOf():**
- **String.prototype.lastIndexOf():**
- **String.prototype.toLowerCase():**
- **String.prototype.toUpperCase():**



The screenshot shows a code editor with a file named `FA20-BCS-070.js`. The code defines a string `mystring = "FA20-BCS-070"` and uses several `String` prototype methods to demonstrate their functionality. The output is shown in the terminal window below the code editor.

```
1 let mystring = "FA20-BCS-070";
2
3 // Length
4 console.log("Length : " + mystring.length);
5
6 // CharAt (Return Element at specified Index)
7 console.log("CharAt : " + mystring.charAt(0));
8
9 // Index of (Return first Index of element from left)
10 console.log("IndexOf : " + mystring.indexOf("B"));
11
12 //LastIndexOf (Returns the index of the last occurrence of a value)
13 console.log("LastIndexOf : " + mystring.lastIndexOf(0));
14
15 //toLowerCase (This function converts a string to LowerCase.)
16 console.log("LowerCase : " + mystring.toLowerCase());
17
18 //toUpperCase (This function converts a string to uppercase.)
19 console.log("Upper Case: " + mystring.toUpperCase());
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Filter (e.g. text, !exclude)

```
C:\Program Files\nodejs\node.exe .\FA20-BCS-070.js
Length : 12
CharAt : F
IndexOf : 5
LastIndexOf : 11
LowerCase : fa20-bcs-070
Upper Case: FA20-BCS-070
```

- **String.prototype.replace():**
- **String.prototype.slice():**
- **String.prototype.substring():**
- **String.prototype.trim():**
- **String.prototype.split():**

```
FA20-BCS-070.js X
FA20-BCS-070.js > ...
1 let mystring = "FA20-BCS-070";
2 let mystring1 = "COMSATS Attack";
3
4 //Replace:
5 console.log("Replaced String : " + mystring.replace("BCS", "Computer"));
6
7 // Slice:
8 console.log("Slice : " + mystring.slice(0, 4));
9
10 //Substring
11 console.log("Substring: " + mystring.substring(5, 8));
12
13 //Trim
14 console.log("Trim : " + mystring1.trim());
15
16 //Split
17 console.log("Removing Dash(-) : " + mystring.split("-"));
18 console.log("Removing Space : " + mystring1.split(" "));
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL Filter (e.g. text, !exclude)

```
C:\Program Files\nodejs\node.exe .\FA20-BCS-070.js
Replaced String : FA20-Computer-070
Slice : FA20
Substring: BCS
Trim :COMSATS Attack
Removing Dash(-) : FA20,BCS,070
Removing Space : COMSATS,Attack
```

Array Built-In Functions

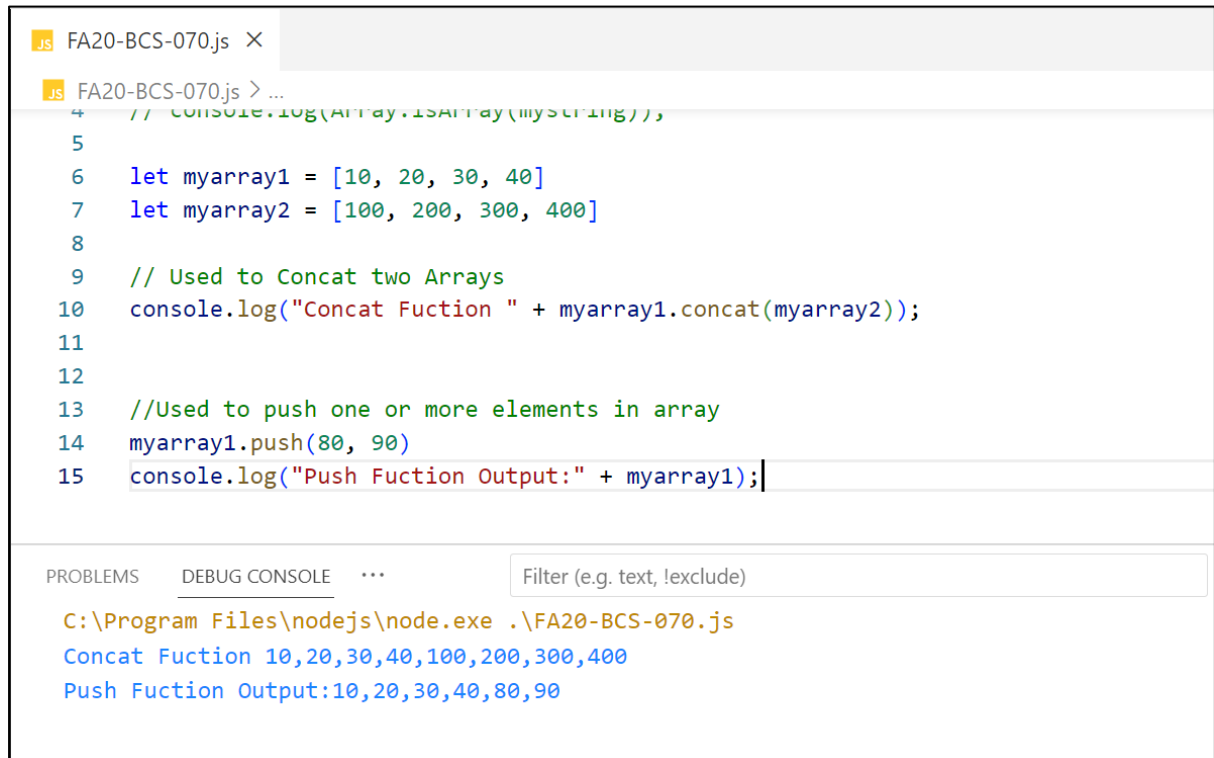
➤ Array.isArray():

```
FA20-BCS-070.js ●
FA20-BCS-070.js > ...
1 let myarray = [10, 20, 30];
2 let mystring = "Hello";
3 console.log(Array.isArray(myarray));
4 console.log(Array.isArray(mystring));
5 |
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL Filter (e.g. text, !exclude)

```
C:\Program Files\nodejs\node.exe .\FA20-BCS-070.js
true
false
```

- **Array.prototype.concat():**
- **Array.prototype.push():**



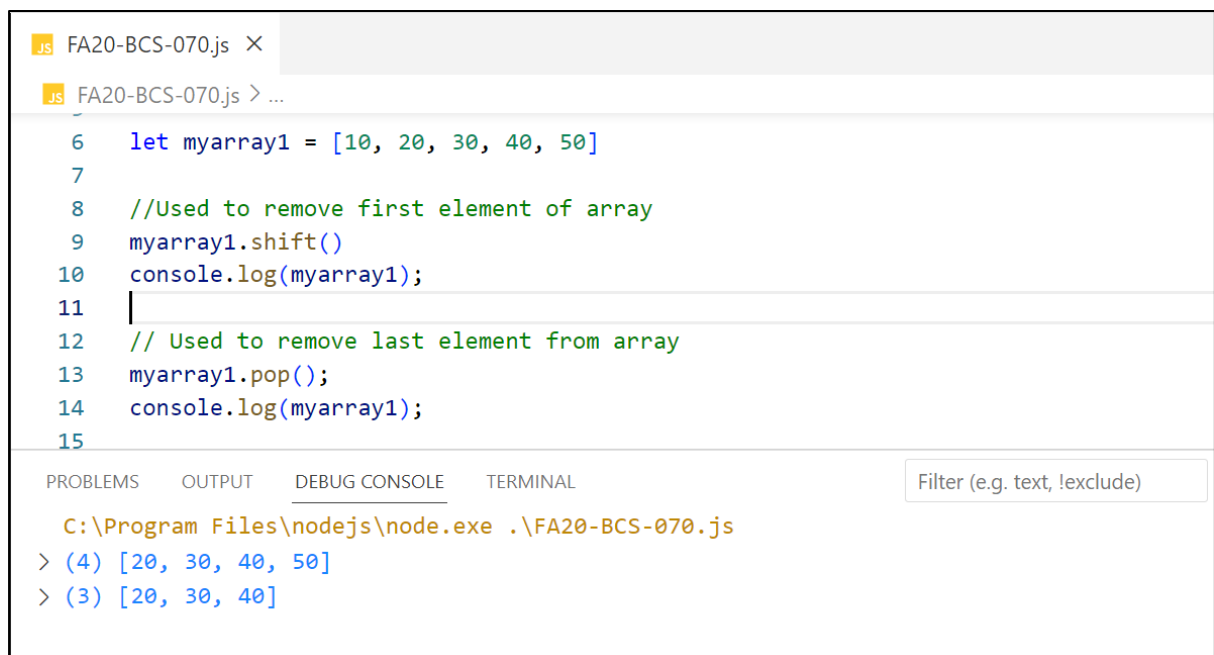
The screenshot shows a VS Code editor window with a file named FA20-BCS-070.js. The code defines two arrays, myarray1 and myarray2, and uses the concat and push methods. The Debug Console shows the output of these operations.

```
JS FA20-BCS-070.js X
JS FA20-BCS-070.js > ...
4 // console.log(Array.isArray(mystring));
5
6 let myarray1 = [10, 20, 30, 40]
7 let myarray2 = [100, 200, 300, 400]
8
9 // Used to Concat two Arrays
10 console.log("Concat Fuction " + myarray1.concat(myarray2));
11
12
13 //Used to push one or more elements in array
14 myarray1.push(80, 90)
15 console.log("Push Fuction Output:" + myarray1);
```

PROBLEMS DEBUG CONSOLE ... Filter (e.g. text, !exclude)

C:\Program Files\nodejs\node.exe .\FA20-BCS-070.js
Concat Fuction 10,20,30,40,100,200,300,400
Push Fuction Output:10,20,30,40,80,90

- **Array.prototype.shift():**
- **Array.prototype.pop():**



The screenshot shows a VS Code editor window with a file named FA20-BCS-070.js. The code defines an array myarray1 and uses the shift and pop methods. The Debug Console shows the output of these operations.

```
JS FA20-BCS-070.js X
JS FA20-BCS-070.js > ...
6 let myarray1 = [10, 20, 30, 40, 50]
7
8 //Used to remove first element of array
9 myarray1.shift()
10 console.log(myarray1);
11
12 // Used to remove last element from array
13 myarray1.pop();
14 console.log(myarray1);
15
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL Filter (e.g. text, !exclude)

C:\Program Files\nodejs\node.exe .\FA20-BCS-070.js
> (4) [20, 30, 40, 50]
> (3) [20, 30, 40]

- **Array.prototype.filter():**
- **Array.prototype.map():**

```

JS FA20-BCS-070.js X
JS FA20-BCS-070.js > ...
6   let myarray1 = [10, 21, 20, 41, 60]
7
8   //Filter() takes a function as an argument and returns a new
9   // array with all the elements in the original array that
10  // pass a certain condition defined by the function.
11  console.log("-----Filter FUNCTION-----");
12
13  const get_even_numbers = myarray1.filter(X => X % 2 == + 0);
14  console.log("Even Numbers in Array are: " + get_even_numbers);
15
16  console.log("-----MAP FUNCTION-----");
17  // Map() takes a function as an argument and applies
18  // that function to every element in the array,
19  // creating a new array with the transformed values.
20  const square_of_array = myarray1.map(Y => Y * Y);
21  console.log("Square of Elements in Array is: " + square_of_array);

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL Filter (e.g. text, !exclude)

```

C:\Program Files\nodejs\node.exe .\FA20-BCS-070.js
-----Filter FUNCTION-----
Even Numbers in Array are: 10,20,60
-----MAP FUNCTION-----
Square of Elements in Array is: 100,441,400,1681,3600

```

- **Array.prototype.unshift():**
- **Array.prototype.splice():**

```

JS FA20-BCS-070.js X
JS FA20-BCS-070.js > ...
6   let myarray1 = [10, 21, 20, 41, 60]
7
8   //Unshift fuction add element into the start
9   console.log("Before: " + myarray1);
10  myarray1.unshift(5);
11  console.log("Element Added: " + myarray1);
12
13
14  //Splice Fuction
15  //array.splice(start, deleteCount, item1, item2, ...)
16  let myarray2 = [10, 20, 30, 40, 50]
17  myarray2.splice(0, 2, 70, 80);
18  console.log("Splice Fuction: " + myarray2);
19

```

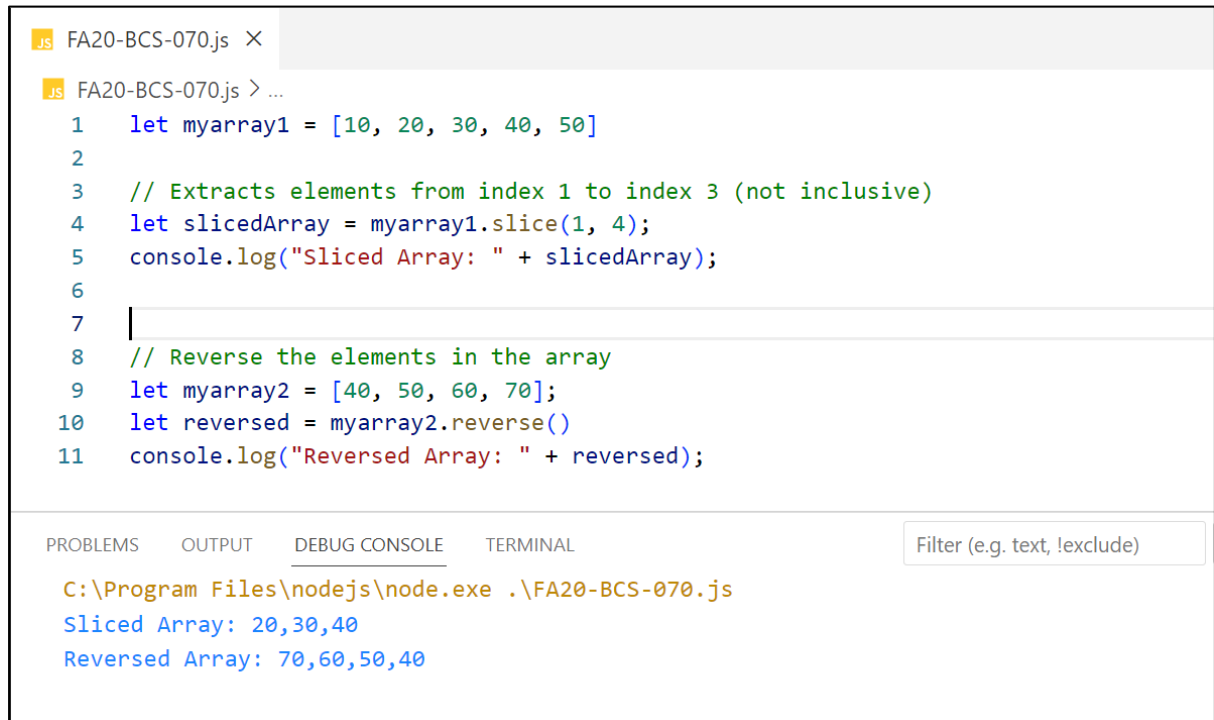
PROBLEMS DEBUG CONSOLE ... Filter (e.g. text, !exclude)

```

C:\Program Files\nodejs\node.exe .\FA20-BCS-070.js
Before: 10,21,20,41,60
Element Added: 5,10,21,20,41,60
Splice Fuction: 70,80,30,40,50

```

- **Array.prototype.slice():**
- **Array.prototype.reverse():**

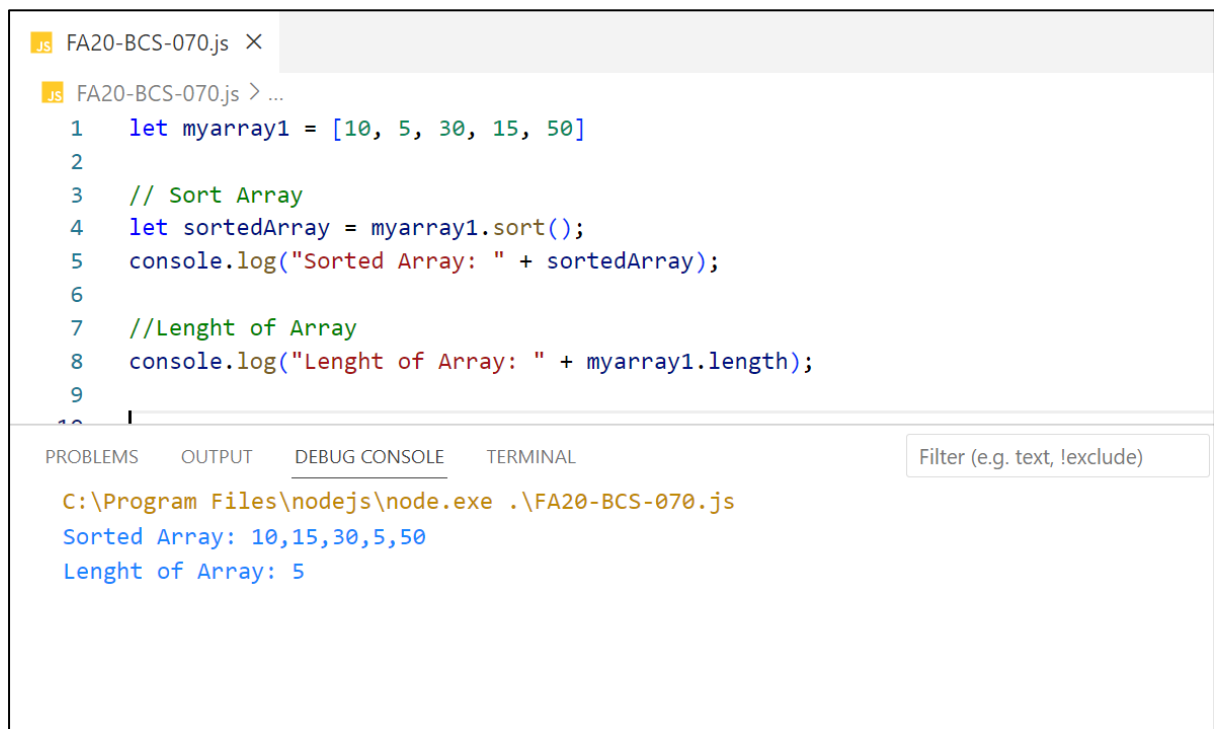


```
JS FA20-BCS-070.js X
JS FA20-BCS-070.js > ...
1  let myarray1 = [10, 20, 30, 40, 50]
2
3  // Extracts elements from index 1 to index 3 (not inclusive)
4  let slicedArray = myarray1.slice(1, 4);
5  console.log("Sliced Array: " + slicedArray);
6
7  |
8  // Reverse the elements in the array
9  let myarray2 = [40, 50, 60, 70];
10 let reversed = myarray2.reverse()
11 console.log("Reversed Array: " + reversed);
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL Filter (e.g. text, !exclude)

C:\Program Files\nodejs\node.exe .\FA20-BCS-070.js
Sliced Array: 20,30,40
Reversed Array: 70,60,50,40

- **Array.prototype.sort():**
- **Array.length:**



```
JS FA20-BCS-070.js X
JS FA20-BCS-070.js > ...
1  let myarray1 = [10, 5, 30, 15, 50]
2
3  // Sort Array
4  let sortedArray = myarray1.sort();
5  console.log("Sorted Array: " + sortedArray);
6
7  //Lenght of Array
8  console.log("Lenght of Array: " + myarray1.length);
9
10 |
```

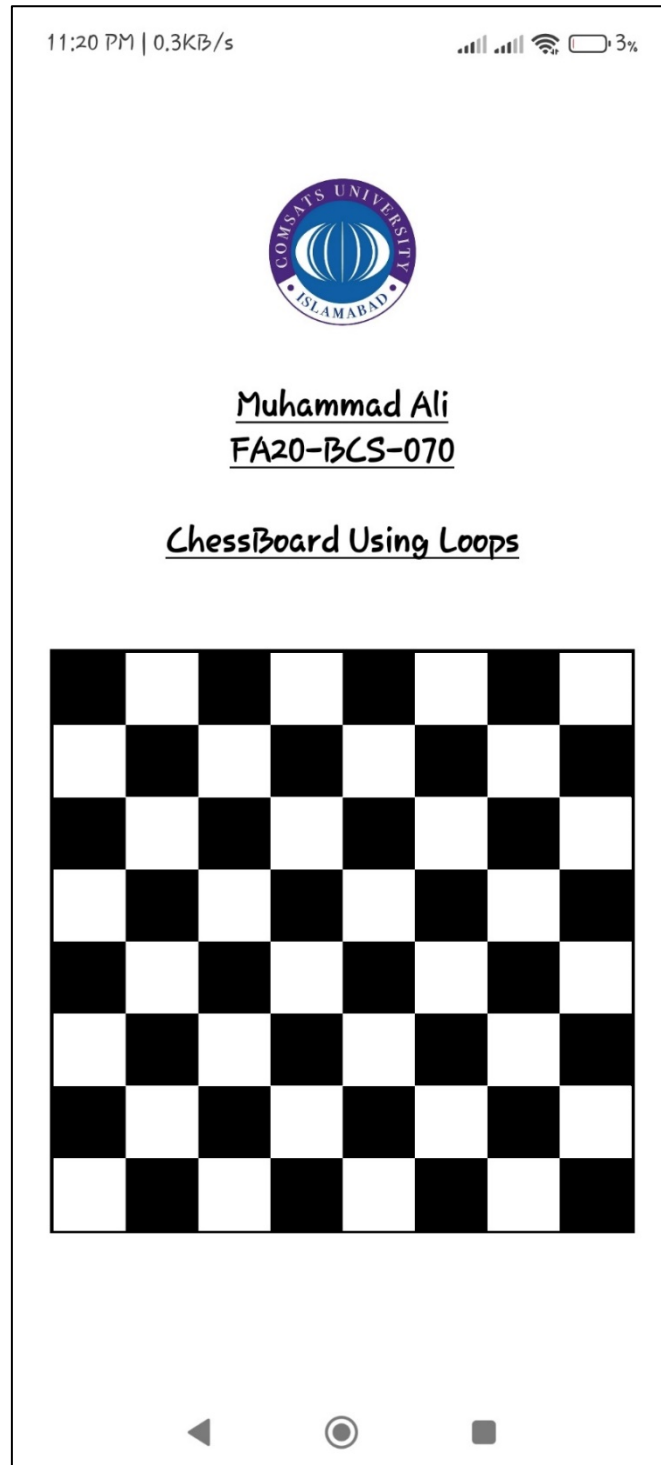
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL Filter (e.g. text, !exclude)

C:\Program Files\nodejs\node.exe .\FA20-BCS-070.js
Sorted Array: 10,15,30,5,50
Lenght of Array: 5

React Native Chess Board

Using Loops

Output



App.js

```
App.js  ×  ChessBoard.js
App.js > ...
1  import { StatusBar } from 'expo-status-bar';
2  import { StyleSheet, Text, View, Image } from 'react-native';
3  import ChessBoard from './ChessBoard';
4
5  export default function App() {
6    return (
7      <View style={styles.container}>
8
9        <Image source={require("./assets/comsats.jpg")} style={styles.logo}></Image>
10       <Text style={styles.heading}>Muhammad Ali{"\n"}FA20-BCS-070{"\n"}{"\n"}ChessBoard Using Loops</Text>
11
12       <View style={styles.board}>
13         <ChessBoard></ChessBoard>
14       </View>
15
16       <StatusBar style="auto" />
17     </View>
18   );
19 }
```

App.js (StyleSheet)

```
App.js  ×  ChessBoard.js
App.js > ...
21  const styles = StyleSheet.create({
22    container: {
23      flex: 1,
24      backgroundColor: '#fff',
25      alignItems: 'center',
26      justifyContent: 'center',
27    },
28    board: {
29      borderColor: "black",
30      borderWidth: 2,
31    },
32    heading: {
33      fontSize: 20,
34      fontWeight: "bold",
35      marginBottom: 50,
36      textAlign: "center",
37      textDecorationStyle: "solid",
38      textDecorationColor: "black",
39      textDecorationLine: "underline",
40    },
41    logo: {
42      width: 100,
43      height: 100,
44      marginBottom: 30,
45    },
46  });
47
```


ChessBoard.js

```
App.js ChessBoard.js
ChessBoard.js > ...
1 import React, { Component } from 'react';
2 import { StyleSheet, View } from 'react-native';
3 export default class ChessBoard extends Component {
4   render() {
5     const My_Chess_board = [];
6     for (let i = 0; i < 8; i++) {
7       const row = [];
8       for (let j = 0; j < 8; j++) {
9         const color = (i + j) % 2 === 0 ? 'black' : 'white';
10        row.push(
11          <View style={styles.square, { backgroundColor: color }} />
12        );
13      }
14      My_Chess_board.push(
15        <View style={styles.row}>{row}</View>
16      );
17    }
18    return <View style={styles.My_Chess_board}>{My_Chess_board}</View>
19  }
20 }
21
22
```

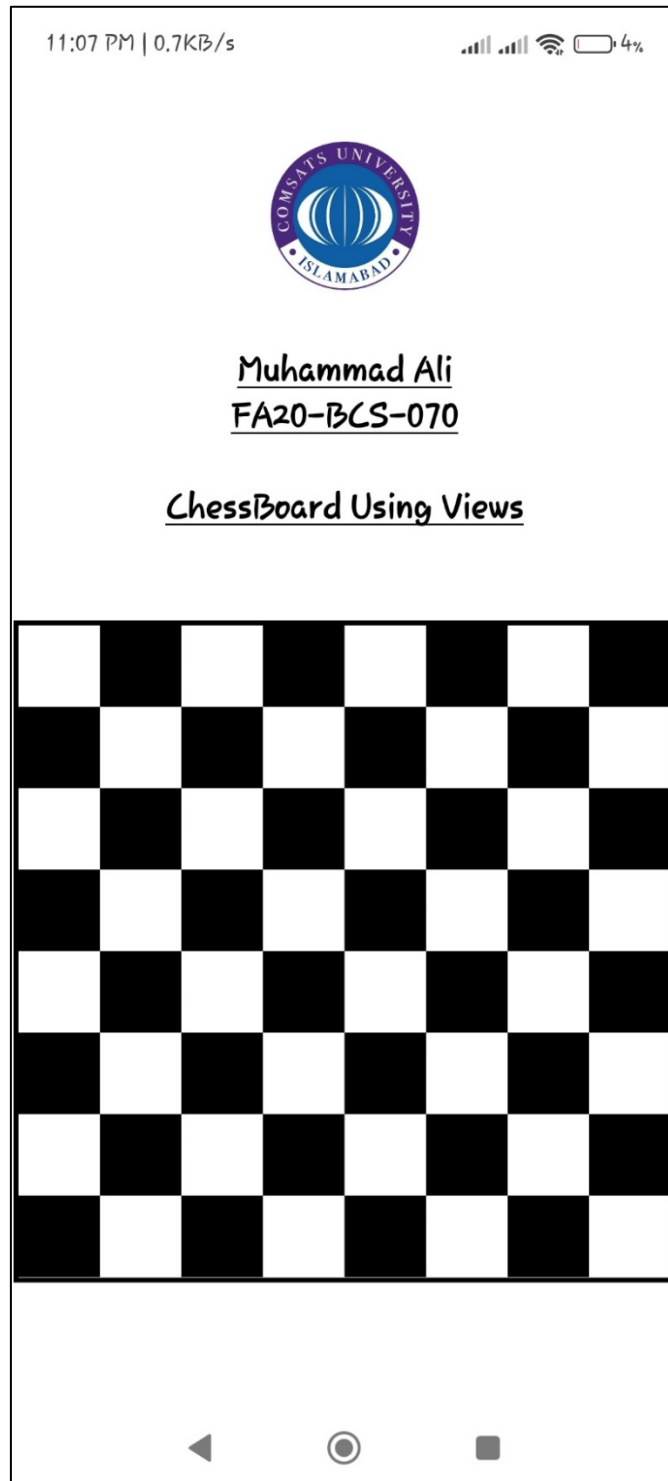
ChessBoard.js (Stylesheet)

```
App.js ChessBoard.js
ChessBoard.js > ...
21
22
23 const styles = StyleSheet.create({
24   container: {
25     flex: 1,
26     backgroundColor: '#fff',
27     alignItems: 'center',
28     justifyContent: 'center',
29   },
30   row: {
31     flexDirection: "row",
32   },
33   square: {
34     width: 43,
35     height: 43,
36   }
37 });
38
```

React Native Chess Board

Using Loops

Output



App.js

```
Appjs
Appjs > App
1  import { StatusBar } from 'expo-status-bar';
2  import { StyleSheet, Text, View, Image } from 'react-native';
3
4  export default function App() {
5
6    return (
7
8      <View style={styles.container}>
9
10     <Image source={require("../assets/comsats.jpg")} style={styles.logo}></Image>
11     <Text style={styles.heading}>Muhammad Ali{"\n"}FA20-BCS-070{"\n"}{"\n"}ChessBoard Using Views</Text>
12
13     <View style={styles.chess}>
14
15   > <View style={styles.row}>...
24   </View>
25
26   <View style={styles.row}>
27     <View style={styles.grid2}></View>
28     <View style={styles.grid1}></View>
29     <View style={styles.grid2}></View>
30     <View style={styles.grid1}></View>
31     <View style={styles.grid2}></View>
32     <View style={styles.grid1}></View>
33     <View style={styles.grid2}></View>
34     <View style={styles.grid1}></View>
35   </View>
36
37   <View style={styles.row}>
38     <View style={styles.grid1}></View>
39     <View style={styles.grid2}></View>
40     <View style={styles.grid1}></View>
41     <View style={styles.grid2}></View>
42     <View style={styles.grid1}></View>
43     <View style={styles.grid2}></View>
44     <View style={styles.grid1}></View>
45     <View style={styles.grid2}></View>
46   </View>
47
48   <View style={styles.row}>
49     <View style={styles.grid2}></View>
50     <View style={styles.grid1}></View>
51     <View style={styles.grid2}></View>
52     <View style={styles.grid1}></View>
53     <View style={styles.grid2}></View>
54     <View style={styles.grid1}></View>
55     <View style={styles.grid2}></View>
```

App.js (Stylesheet)

```
App.js
App.js > App
109
110 const styles = StyleSheet.create({
111   heading: {
112     fontSize: 20,
113     fontWeight: "bold",
114     marginBottom: 50,
115     textAlign: "center",
116     textDecorationStyle: "solid",
117     textDecorationColor: "black",
118     textDecorationLine: "underline",
119   },
120   logo: {
121     width: 100,
122     height: 100,
123     marginBottom: 30,
124   },
125
126   container: {
127     backgroundColor: "white",
128     flex: 1,
129     justifyContent: "center",
130     alignItems: "center"
131   },
132   grid1: {
133     backgroundColor: "white",
134     width: 48,
135     height: 48,
136   },
137   grid2: {
138     width: 48,
139     height: 48,
140     backgroundColor: "black"
141   },
142   chess: {
143     borderColor: "black",
144     borderWidth: 3,
145     margin: 2,
146   },
147   row: {
148     flexDirection: "row"
149   },
150
151 });
152
```

