

Name : Naseem HAssan

Reg_No : Fa20-Bcs-068

Subject : MAD Theory

Assignment : 02

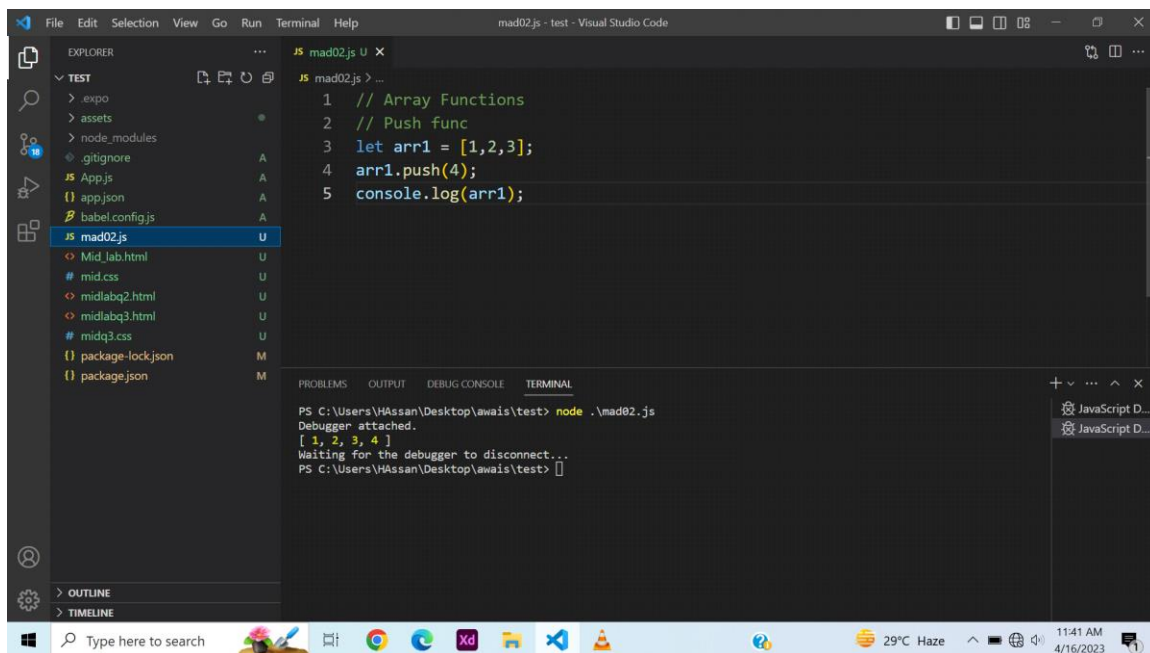
Question No: 01

Array functions in JavaScript with examples.

Answer:

push:

This method adds one or more elements to the end of an array and returns the new length of the array.



```
File Edit Selection View Go Run Terminal Help mad02.js - test - Visual Studio Code

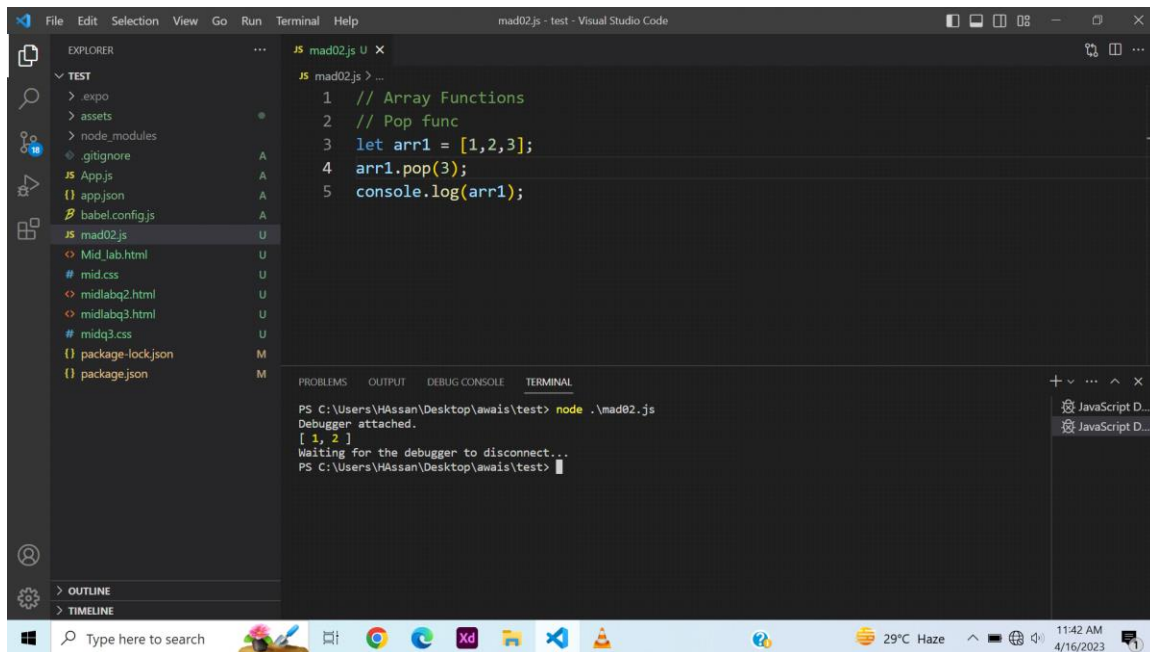
EXPLORER
  TEST
    > .expo
    > assets
    > node_modules
    > .gitignore
    JS App.js
    {} app.json
    {} babel.config.js
    JS mad02.js
    > Mid_lab.html
    > mid.css
    > midlabq2.html
    > midlabq3.html
    > midq3.css
    {} package-lock.json
    {} package.json

JS mad02.js U
1 // Array Functions
2 // Push func
3 let arr1 = [1,2,3];
4 arr1.push(4);
5 console.log(arr1);

TERMINAL
PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Debugger attached.
[ 1, 2, 3, 4 ]
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>
```

Pop:

This method removes the last element from an array and returns that element.



The screenshot shows the Visual Studio Code interface. On the left, the Explorer sidebar displays a file tree for a project named 'TEST'. The file 'mad02.js' is selected. The main editor area shows the content of 'mad02.js', which contains the following code:

```
1 // Array Functions
2 // Pop func
3 let arr1 = [1,2,3];
4 arr1.pop(3);
5 console.log(arr1);
```

Below the editor, the TERMINAL panel is open, showing the command prompt output:

```
PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Debugger attached.
[ 1, 2 ]
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>
```

The Windows taskbar at the bottom shows the system clock as 11:42 AM on 4/16/2023, with a weather widget indicating 29°C and Haze.

Shift:

This method removes the first element from an array and returns that element.

The screenshot shows the Visual Studio Code interface with a file explorer on the left, a code editor in the center, and a terminal at the bottom. The file explorer shows a project named 'TEST' with various files. The code editor displays a JavaScript file named 'mad02.js' with the following code:

```
1 // Array Functions
2 // Shift func
3 let arr1 = [1,2,3];
4 let first_el = arr1.shift();
5 console.log(first_el);
6 console.log(arr1);
```

The terminal shows the command `node .\mad02.js` being executed, resulting in the output `1` and `[2, 3]`. The status bar at the bottom indicates the system is at 29°C with haze, and the date is 4/16/2023.

UnShift:

This method adds one or more elements to the beginning of an array and returns the new length of the array.

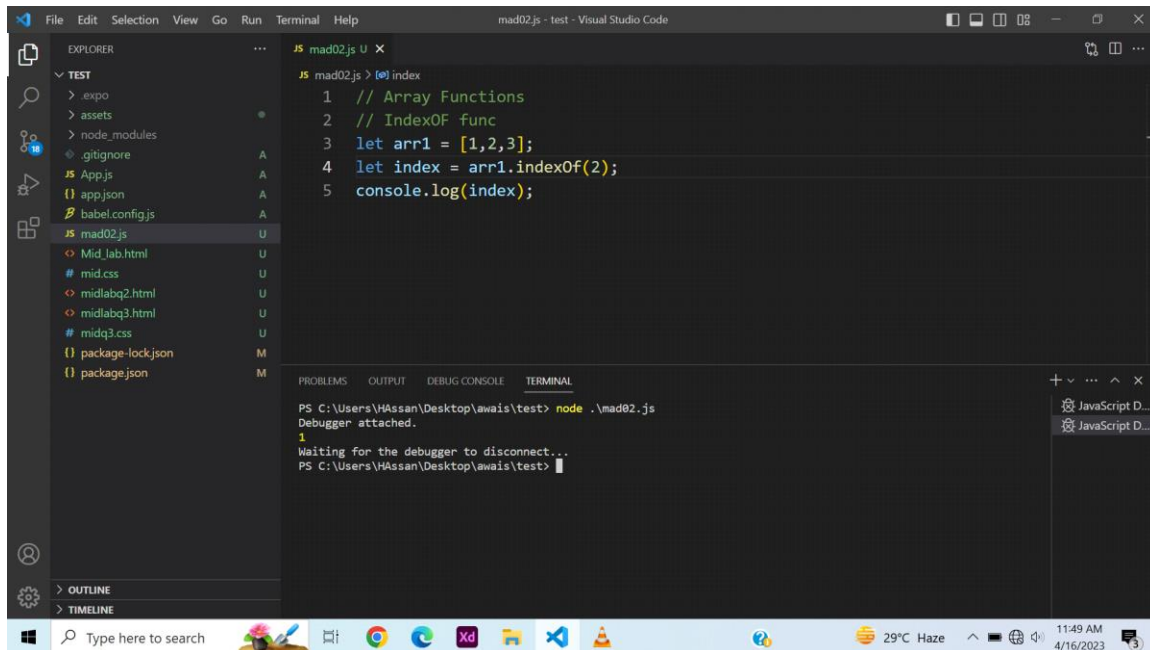
The screenshot shows the Visual Studio Code interface with a file explorer on the left, a code editor in the center, and a terminal at the bottom. The file explorer shows a project named 'TEST' with various files. The code editor displays a JavaScript file named 'mad02.js' with the following code:

```
1 // Array Functions
2 // UnShift func
3 let arr1 = [1,2,3];
4 let first_el = arr1.unshift(0);
5 console.log(arr1);
```

The terminal shows the command `node .\mad02.js` being executed, resulting in the output `[0, 1, 2, 3]`. The status bar at the bottom indicates the system is at 29°C with haze, and the date is 4/16/2023.

indexOf:

This method returns the first index at which a given element can be found in an array, or -1 if it is not present.



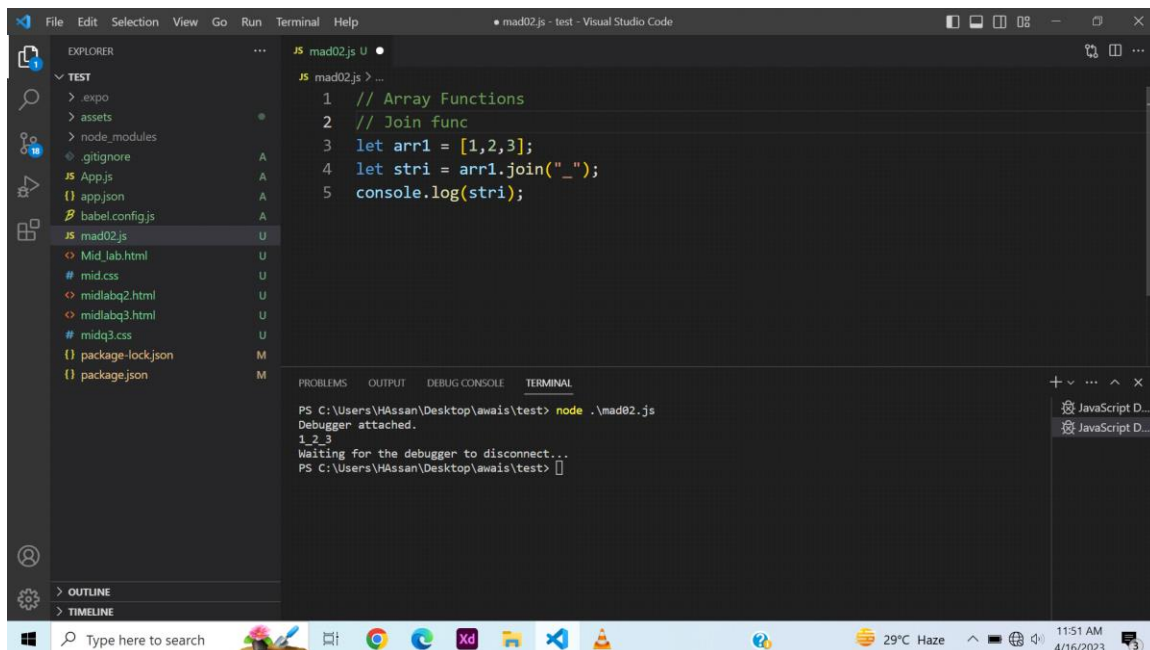
The screenshot shows the Visual Studio Code interface with a file explorer on the left, a code editor in the center, and a terminal at the bottom. The file explorer shows a project named 'TEST' with various files. The code editor displays a JavaScript file named 'mad02.js' with the following code:

```
1 // Array Functions
2 // IndexOF func
3 let arr1 = [1,2,3];
4 let index = arr1.indexOf(2);
5 console.log(index);
```

The terminal shows the command 'node .\mad02.js' being executed, and the output is '1'. The status bar at the bottom indicates the current file is 'mad02.js' and the editor is in 'U' (Unsaved) state.

join:

This method joins all elements of an array into a string.



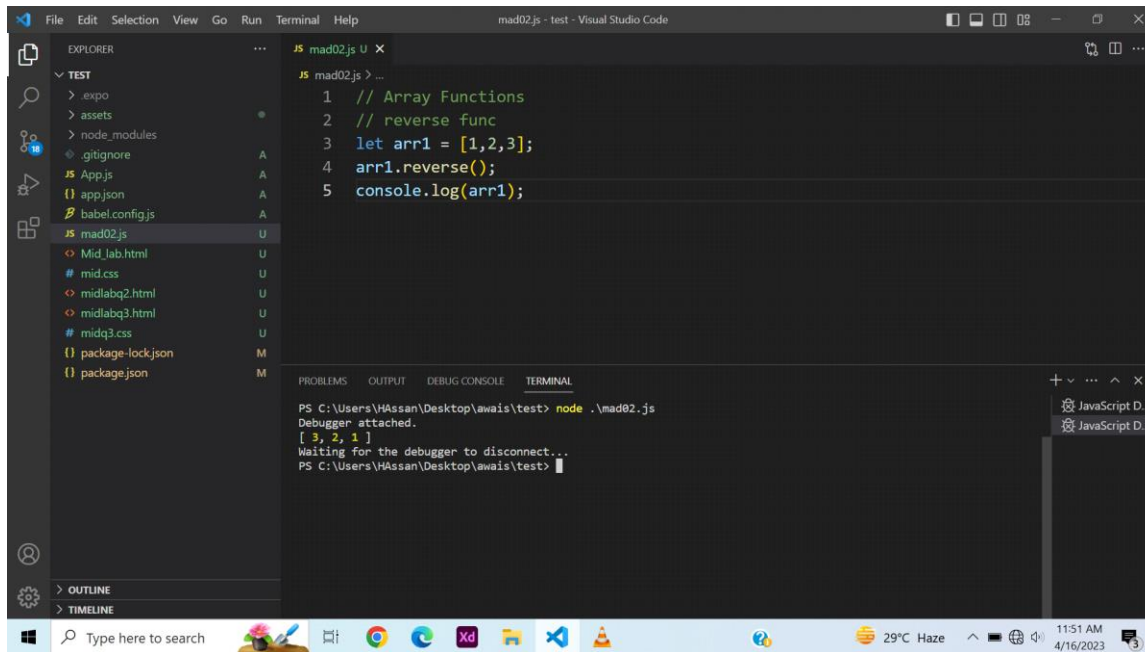
The screenshot shows the Visual Studio Code interface with a file explorer on the left, a code editor in the center, and a terminal at the bottom. The file explorer shows a project named 'TEST' with various files. The code editor displays a JavaScript file named 'mad02.js' with the following code:

```
1 // Array Functions
2 // Join func
3 let arr1 = [1,2,3];
4 let stri = arr1.join("-");
5 console.log(stri);
```

The terminal shows the command 'node .\mad02.js' being executed, and the output is '1_2_3'. The status bar at the bottom indicates the current file is 'mad02.js' and the editor is in 'U' (Unsaved) state.

reverse:

This method reverses the order of the elements in an array.



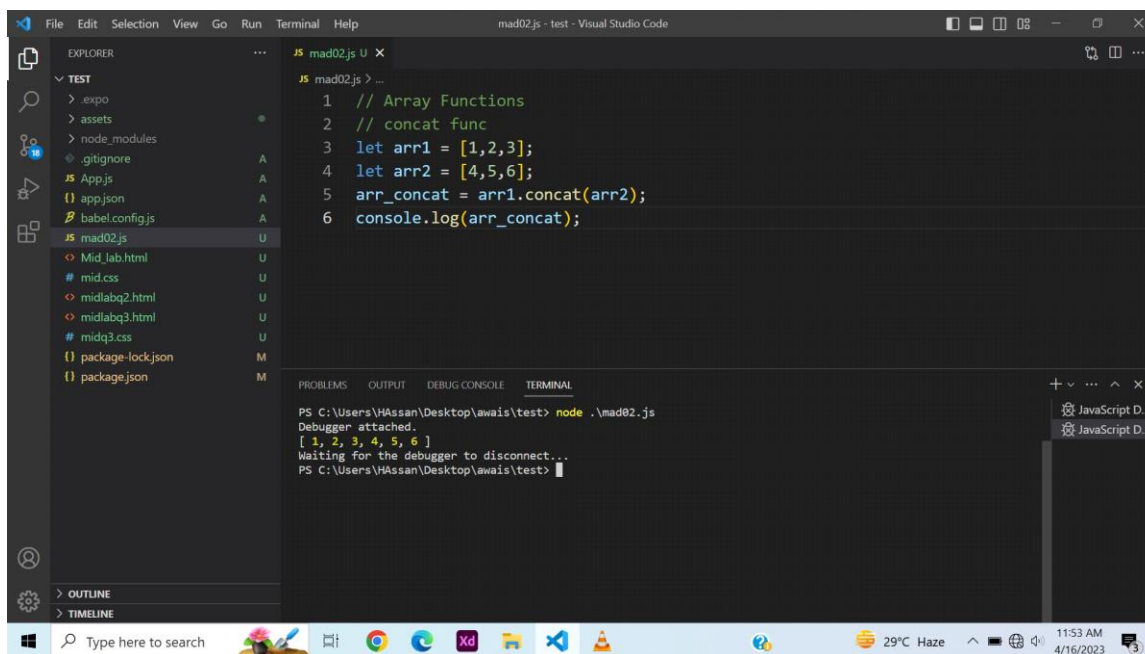
The screenshot shows the Visual Studio Code interface with a file explorer on the left and a code editor in the center. The file explorer shows a project structure with a 'TEST' folder containing several files. The code editor displays a JavaScript file named 'mad02.js' with the following code:

```
1 // Array Functions
2 // reverse func
3 let arr1 = [1,2,3];
4 arr1.reverse();
5 console.log(arr1);
```

The terminal at the bottom shows the command 'node .\mad02.js' being executed, resulting in the output '[3, 2, 1]'.

concat:

This method merges two or more arrays into a new array.



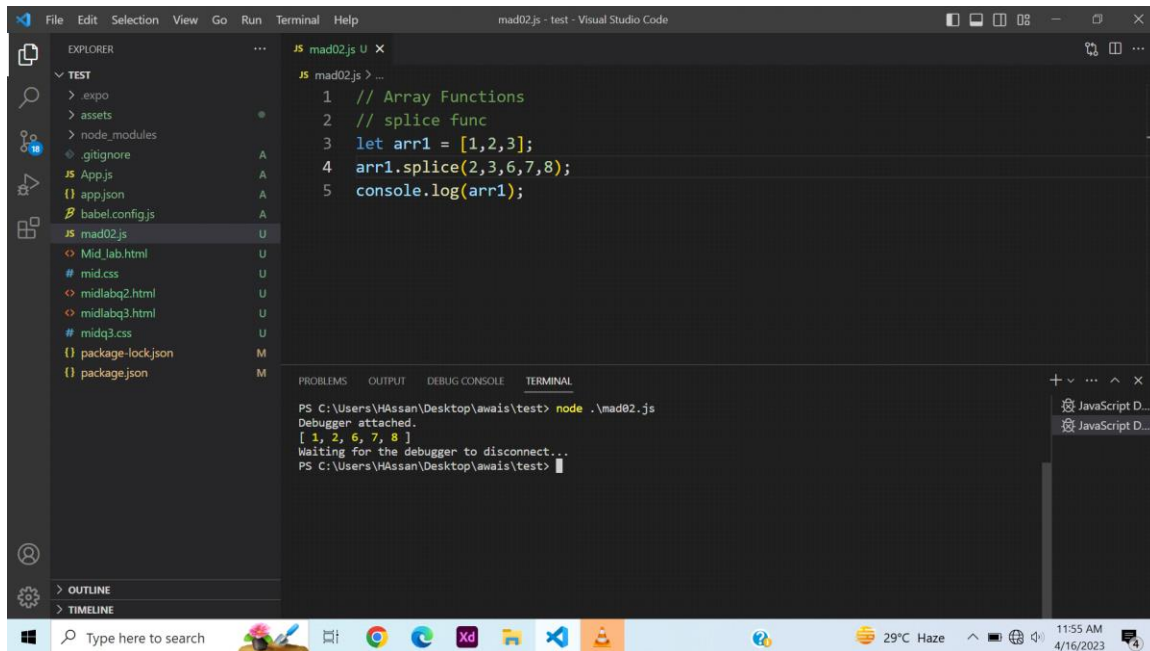
The screenshot shows the Visual Studio Code interface with a file explorer on the left and a code editor in the center. The file explorer shows a project structure with a 'TEST' folder containing several files. The code editor displays a JavaScript file named 'mad02.js' with the following code:

```
1 // Array Functions
2 // concat func
3 let arr1 = [1,2,3];
4 let arr2 = [4,5,6];
5 arr_concat = arr1.concat(arr2);
6 console.log(arr_concat);
```

The terminal at the bottom shows the command 'node .\mad02.js' being executed, resulting in the output '[1, 2, 3, 4, 5, 6]'.

splice:

This method changes the contents of an array by removing or replacing existing elements and/or adding new elements.



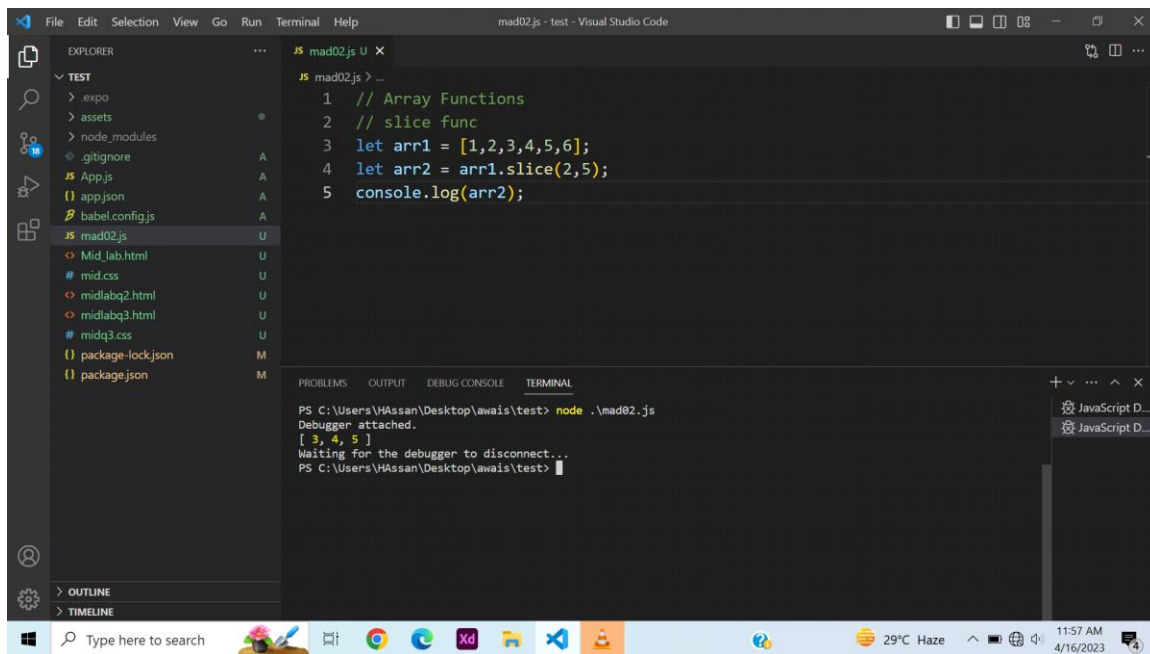
The screenshot shows the Visual Studio Code interface with a file explorer on the left and a code editor in the center. The file explorer shows a project named 'TEST' with various files. The code editor displays a JavaScript file named 'mad02.js' with the following code:

```
1 // Array Functions
2 // splice func
3 let arr1 = [1,2,3];
4 arr1.splice(2,3,6,7,8);
5 console.log(arr1);
```

The terminal at the bottom shows the command 'node .\mad02.js' being executed, resulting in the output '[1, 2, 6, 7, 8]'.

slice:

This method returns a shallow copy of a portion of an array into a new array.



The screenshot shows the Visual Studio Code interface with a file explorer on the left and a code editor in the center. The file explorer shows a project named 'TEST' with various files. The code editor displays a JavaScript file named 'mad02.js' with the following code:

```
1 // Array Functions
2 // slice func
3 let arr1 = [1,2,3,4,5,6];
4 let arr2 = arr1.slice(2,5);
5 console.log(arr2);
```

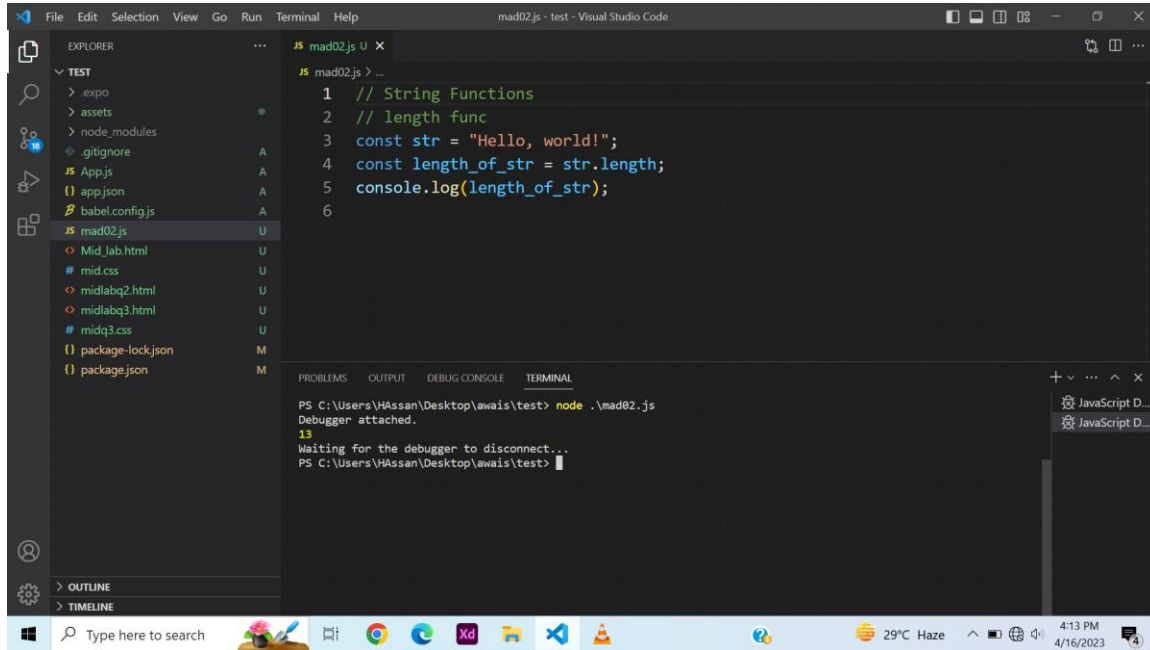
The terminal at the bottom shows the command 'node .\mad02.js' being executed, resulting in the output '[3, 4, 5]'.

Question No: 02

Answer:

length:

This property returns the length of a string.



```
File Edit Selection View Go Run Terminal Help
mad02.js - test - Visual Studio Code

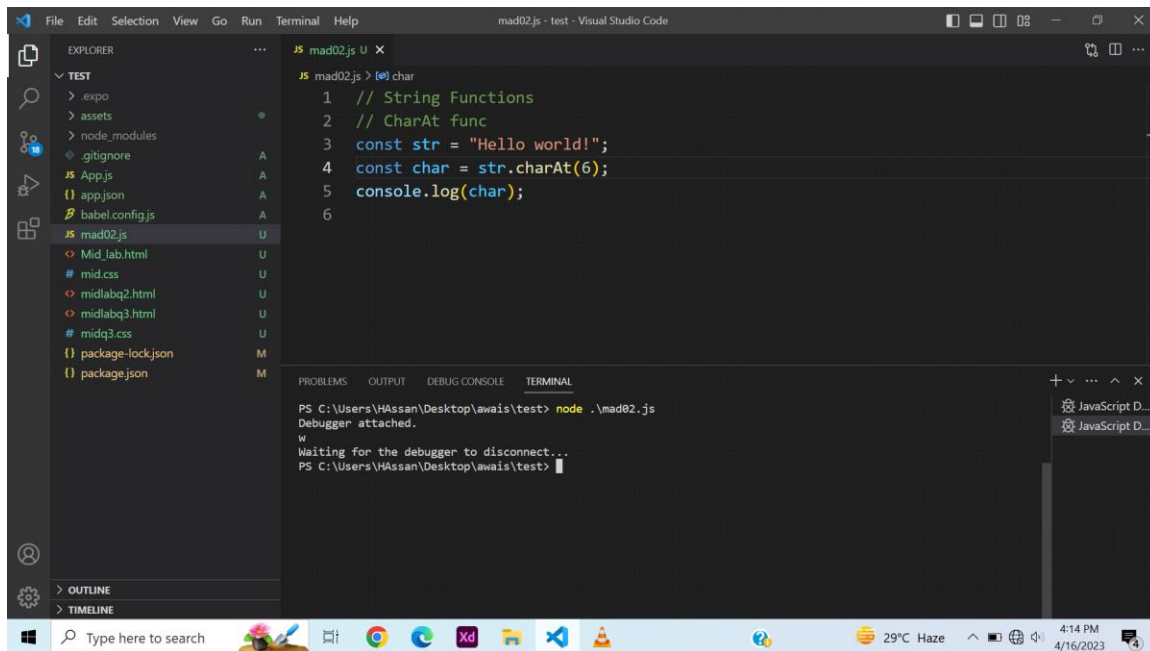
EXPLORER
TEST
  > expo
  > assets
  > node_modules
  > .gitignore
  JS App.js
  {} app.json
  {} babel.config.js
  JS mad02.js
  Mid_lab.html
  # mid.css
  Midlabq2.html
  Midlabq3.html
  # midq3.css
  {} package-lock.json
  {} package.json

JS mad02.js
1 // String Functions
2 // length func
3 const str = "Hello, world!";
4 const length_of_str = str.length;
5 console.log(length_of_str);
6

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Debugger attached.
13
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>
```

charAt:

This method returns the character at a specified index in a string.



```
File Edit Selection View Go Run Terminal Help
mad02.js - test - Visual Studio Code

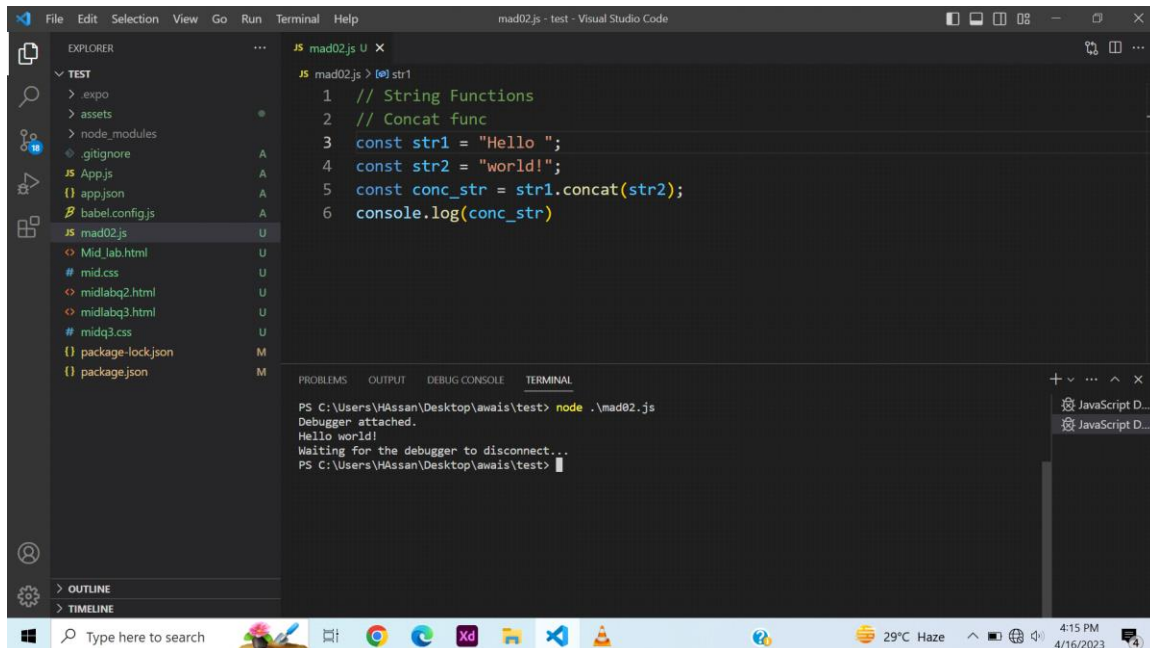
EXPLORER
TEST
  > .expo
  > assets
  > node_modules
  > .gitignore
  JS App.js
  {} app.json
  {} babel.config.js
  JS mad02.js
  > Mid_lab.html
  # mid.css
  > midlabq2.html
  > midlabq3.html
  # midq3.css
  {} package-lock.json
  {} package.json

JS mad02.js U X
1 // String Functions
2 // CharAt func
3 const str = "Hello world!";
4 const char = str.charAt(6);
5 console.log(char);
6

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Debugger attached.
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>
```

concat:

This method concatenates two or more strings and returns the new string.



```
File Edit Selection View Go Run Terminal Help
mad02.js - test - Visual Studio Code

EXPLORER
TEST
  > .expo
  > assets
  > node_modules
  > .gitignore
  JS App.js
  {} app.json
  {} babel.config.js
  JS mad02.js
  > Mid_lab.html
  # mid.css
  > midlabq2.html
  > midlabq3.html
  # midq3.css
  {} package-lock.json
  {} package.json

JS mad02.js U X
1 // String Functions
2 // Concat func
3 const str1 = "Hello ";
4 const str2 = "world!";
5 const conc_str = str1.concat(str2);
6 console.log(conc_str)

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Debugger attached.
Hello world!
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>
```

split:

This method splits a string into an array of substrings based on a specified separator.


```
File Edit Selection View Go Run Terminal Help
mad02.js - test - Visual Studio Code

EXPLORER
TEST
  > .expo
  > assets
  > node_modules
  > .gitignore
  JS App.js
  {} app.json
  {} babel.config.js
  JS mad02.js
  > Mid_lab.html
  # mid.css
  > midlabq2.html
  > midlabq3.html
  # midq3.css
  {} package-lock.json
  {} package.json

JS mad02.js U
1 // String Functions
2 // Split func
3 const str = "Hello world!";
4 const arr1 = str.split(" ");
5 console.log(arr1);

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Debugger attached.
[ 'Hello', 'world!' ]
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>
```

replace:

This method replaces a specified value with another value in a string.

```
File Edit Selection View Go Run Terminal Help
mad02.js - test - Visual Studio Code

EXPLORER
TEST
  > .expo
  > assets
  > node_modules
  > .gitignore
  JS App.js
  {} app.json
  {} babel.config.js
  JS mad02.js
  > Mid_lab.html
  # mid.css
  > midlabq2.html
  > midlabq3.html
  # midq3.css
  {} package-lock.json
  {} package.json

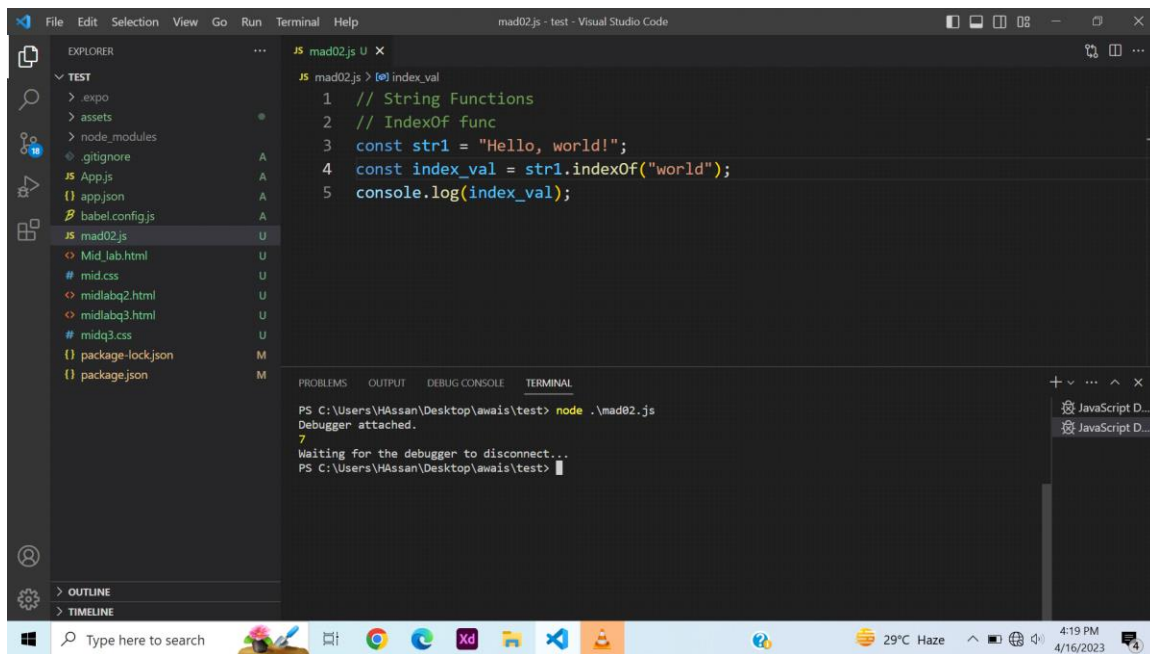
JS mad02.js U X
1 // String Functions
2 // Replace func
3 const str = "Hello world!";
4 const str2 = str.replace("world", "PAK");
5 console.log(str2);
6

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Debugger attached.
Hello PAK!
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>
```

indexOf:

This method returns the index of the first occurrence of a specified value in a string, or -1 if it is not

found.



The screenshot shows the Visual Studio Code editor with a file named `mad02.js` open. The Explorer sidebar on the left shows a project structure with files like `App.js`, `package.json`, and `mad02.js`. The main editor area displays the following JavaScript code:

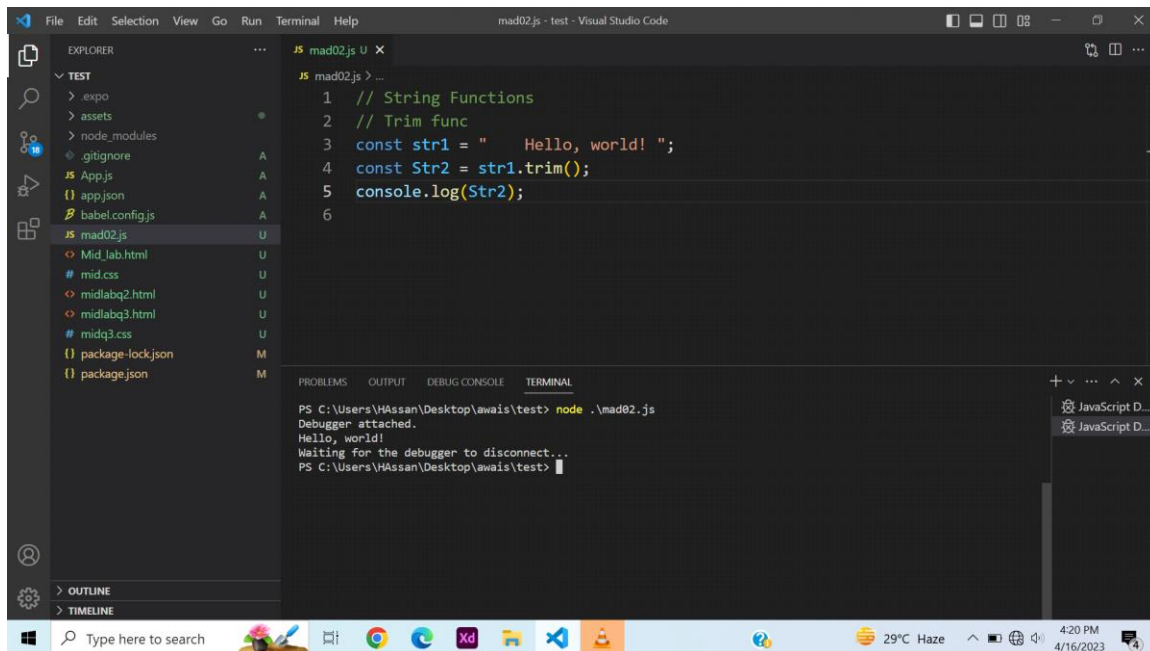
```
1 // String Functions
2 // IndexOf func
3 const str1 = "Hello, world!";
4 const index_val = str1.indexOf("world");
5 console.log(index_val);
```

The bottom panel shows the TERMINAL output:

```
PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Debugger attached.
7
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>
```

trim:

This method removes whitespace from both ends of a string.



The screenshot shows the Visual Studio Code editor with a file named `mad02.js` open. The Explorer sidebar on the left shows the same project structure as the previous image. The main editor area displays the following JavaScript code:

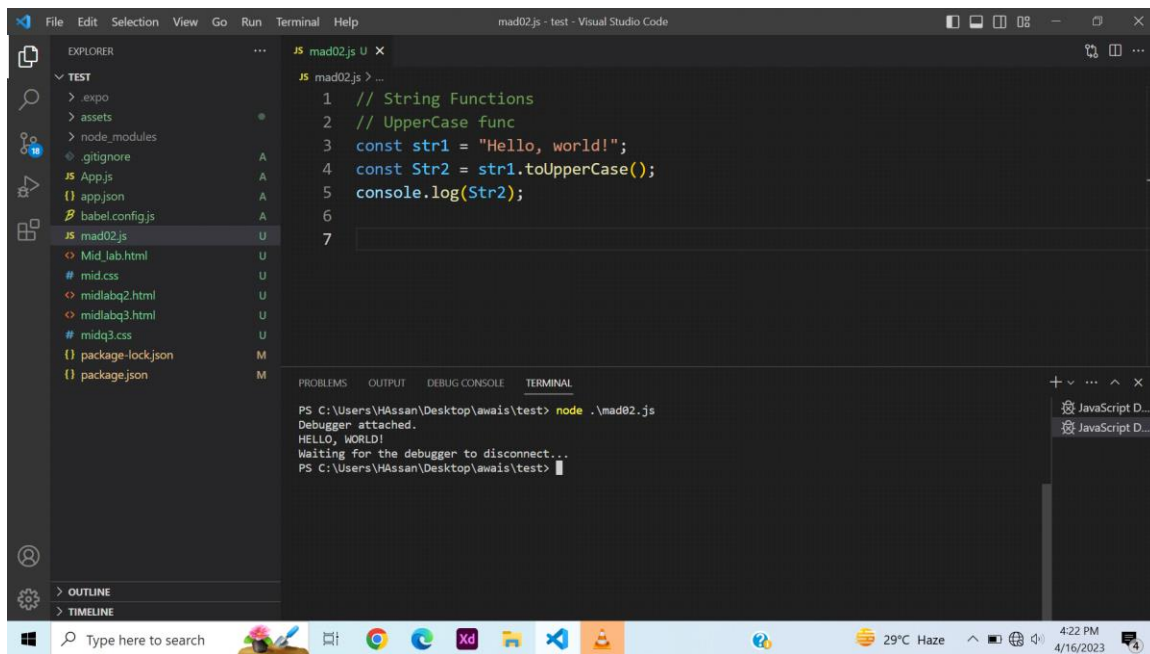
```
1 // String Functions
2 // Trim func
3 const str1 = "  Hello, world! ";
4 const Str2 = str1.trim();
5 console.log(Str2);
6
```

The bottom panel shows the TERMINAL output:

```
PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Debugger attached.
Hello, world!
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>
```

toUpperCase:

This method returns a new string with all characters in uppercase.



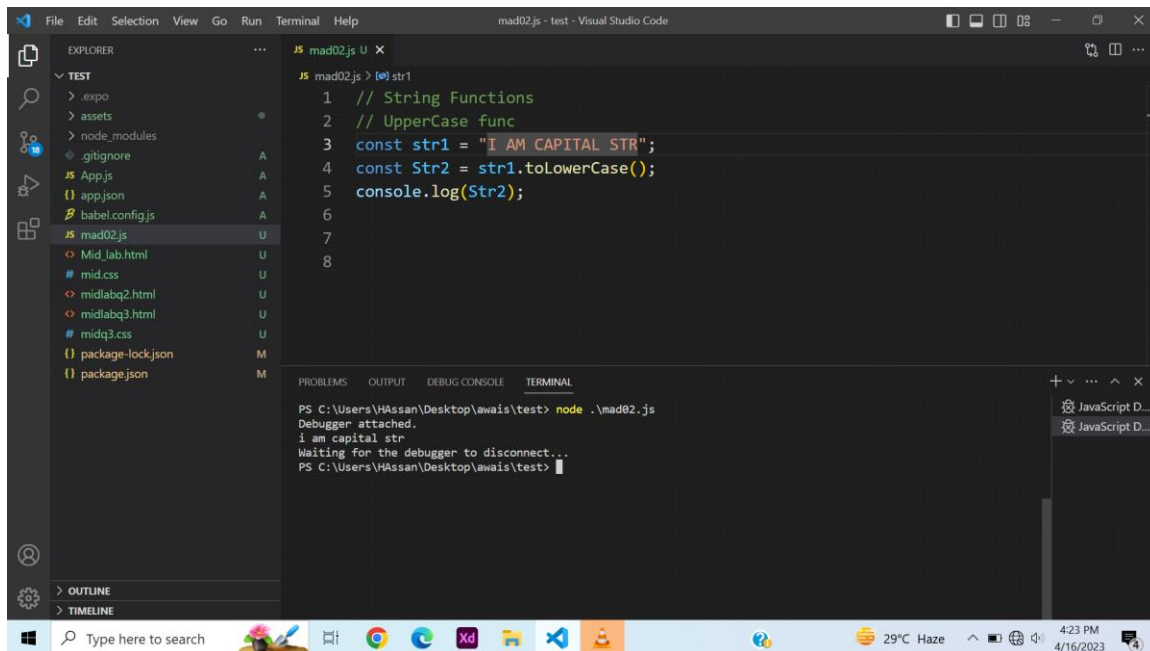
The screenshot shows the Visual Studio Code interface with a file explorer on the left, a code editor in the center, and a terminal at the bottom. The file explorer shows a project named 'TEST' with various files. The code editor displays a JavaScript file named 'mad02.js' with the following code:

```
1 // String Functions
2 // UpperCase func
3 const str1 = "Hello, world!";
4 const Str2 = str1.toUpperCase();
5 console.log(Str2);
6
7
```

The terminal shows the command 'node .\mad02.js' being executed, resulting in the output 'HELLO, WORLD!'.

toLowerCase:

This method returns a new string with all characters in lowercase.



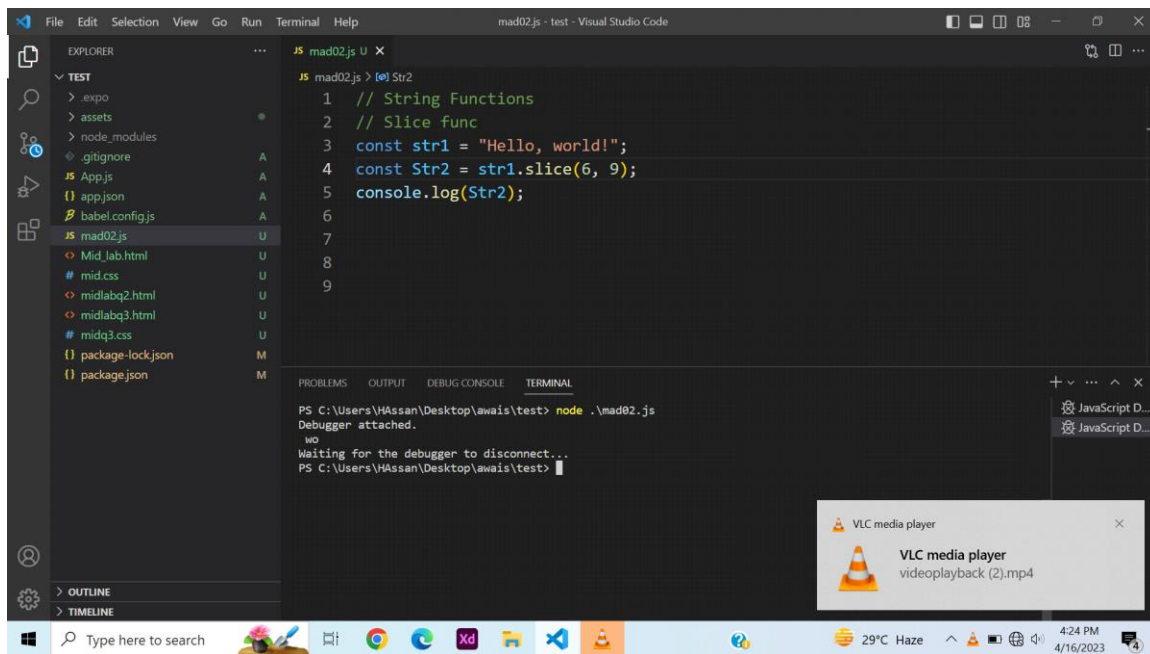
The screenshot shows the Visual Studio Code interface with a file explorer on the left, a code editor in the center, and a terminal at the bottom. The file explorer shows a project named 'TEST' with various files. The code editor displays a JavaScript file named 'mad02.js' with the following code:

```
1 // String Functions
2 // UpperCase func
3 const str1 = "I AM CAPITAL STR";
4 const Str2 = str1.toLowerCase();
5 console.log(Str2);
6
7
8
```

The terminal shows the command 'node .\mad02.js' being executed, resulting in the output 'i am capital str'.

slice:

This method returns a portion of a string into a new string.



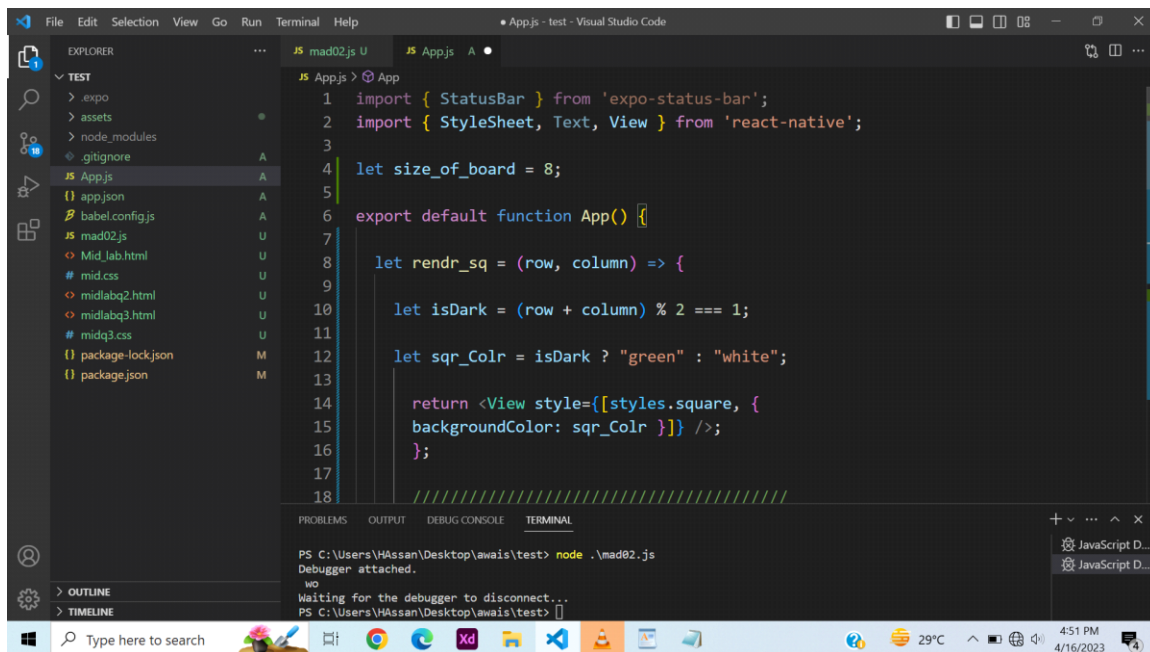
```
1 // String Functions
2 // Slice func
3 const str1 = "Hello, world!";
4 const Str2 = str1.slice(6, 9);
5 console.log(Str2);
6
7
8
9
```

PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Hello, world!
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>

Question No: 03

Design chess board UI in react native?

Answer:



```
1 import { StatusBar } from 'expo-status-bar';
2 import { StyleSheet, Text, View } from 'react-native';
3
4 let size_of_board = 8;
5
6 export default function App() {
7
8   let rendr_sq = (row, column) => {
9
10     let isDark = (row + column) % 2 === 1;
11
12     let sqr_Colr = isDark ? "green" : "white";
13
14     return <View style={[styles.square, {
15       backgroundColor: sqr_Colr }]} />;
16   };
17
18   ///////////////////////////////////////////////////
```

PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Hello, world!
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>

```
18 //////////////////////////////////////////////////
19 let renderRow = (row) => {
20   const squares = [];
21   for (let col = 0; col < size_of_board; col++) {
22     squares.push(rendr_sq(row, col));
23   }
24
25   return <View style={styles.row}>{squares}</View>;
26 };
27
28 let rows = [];
29
30 for (let row = 0; row < size_of_board; row++) {
31   rows.push(renderRow(row));
32 }
33 return <View style={styles.board}>{rows}</View>;
34 }
35
```

PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Debugger attached.
no
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>

```
36 //////////////////////////////////////////////////
37
38 const styles = StyleSheet.create({
39   board: {
40     flex: 1,
41     flexDirection: "column",
42     justifyContent: "center",
43     alignItems: "center",
44   },
45   row: {
46     flexDirection: "row",
47     justifyContent: "center",
48     alignItems: "center",
49   },
50   square: {
51     width: 42,
52     height: 42,
53   },
54
```

PS C:\Users\Hassan\Desktop\awais\test> node .\mad02.js
Debugger attached.
no
Waiting for the debugger to disconnect...
PS C:\Users\Hassan\Desktop\awais\test>

Output:

