Prepared By:

Sajid Ali

MCS, M.Sc (Math), B.Ed

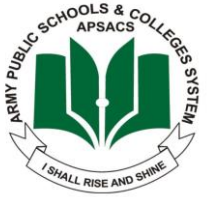
3 PROGRAMING FUNDAMENTALS

Topic: ITERATIVE STATEMENT

NESTED LOOP

ARRAYS

PROGRAMMING FUNDAMENTALS



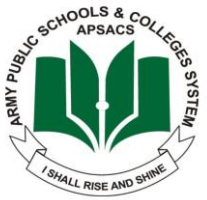
SLOs:

At the end of the lesson Students will be able to:

- Describe Iterative Statement
- Explain Nested Loop
- Explain Array

LGES
KNOWLEDGE IS POWER

PROGRAMMING FUNDAMENTALS



3.4.5 Iterative Statement

Iterative statement like 'For Loop' is used to get similar kind of task done. Rather than writing the same line of code multiple times, the same task is achieved in much lesser line of code. The 'for loop' works on the basis of an index, which you can initialize in the loop. Next is the terminating condition which needs to be set for the loop to terminate. Lastly, step-size needs to be defined that how many steps the index will take after each iteration; till the terminating condition is met. In the following example 'for loop', an index is initialized to 0, the value of index will increment with 1 and loop will execute till index value remains less than 10. Fig-29 depicts start, end and iteration of a for-loop.

PROGRAMMING FUNDAMENTALS

```
1.  <html>
2.    <body>
3.      <script type="text/javascript">
4.              var index;
5.              document.write("For-Loop Starts After This ... <br />");
6.              for(index = 0; index < 10; index=index+1){
7.                      document.write("Index No. : ", index, "<br />");
8.              }
9.              document.write("For-Loop Stopped!");
10.     </script>
11.   </body>
12. </html>
```

Fig-29: A simple For-Loop, shows how index value increases.

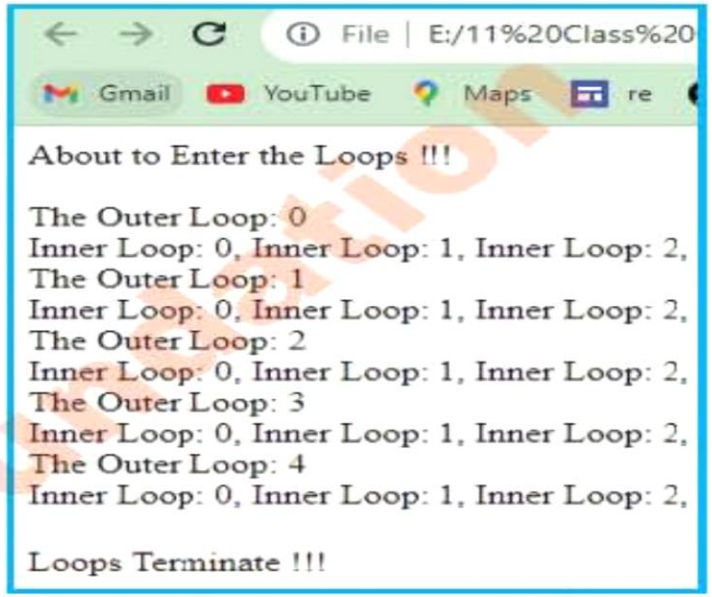
PROGRAMMING FUNDAMENTALS

3.4.6 Nested Loops

Multiple iterative tasks, if can be related then they can be incorporated in such a way that one loop can reside inside the other and are termed as 'Nested Loop'. In nested loop, initially the outer loop will start and then the inner loop will run and finish. Thereafter, the index value of outer loop will increment and the inner loop will start and end again, and so forth and so on; till the outer loop terminates. Fig-31 demonstrates a nested loop.

PROGRAMMING FUNDAMENTALS

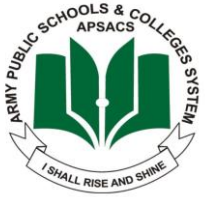
```
1.  <html>
2.    <body>
3.      <script type="text/javascript">
4.          document.write("About to Enter the Loops !!!<br /> ");
5.              for (var i = 0; i < 5; i++)
6.               {
7.                    document.write("<br /> The Outer Loop: ",i,"<br />");
8.                    for (var j = 0; j < 3; j++)
9.                    {
10.                       document.write("Inner Loop: ",j,", ");
11.                   }
12.         }
13.         document.write("<br /> <br /> <br /> Loops Terminate !!!<br /> ");
14.     </script>
15.   </body>
16. </html>
```



Output

Fig-31: Nested Loop

PROGRAMMING FUNDAMENTALS



3.4.7 Arrays

An array is a datatype which can hold a number of homogenous set of elements. Such that we do not need to define multiple variables of the same type like num1, num2, ... num25. Instead, we can declare an array which contains 25 values. This way, we can directly access any value just by passing the respective array-index number. It is trivial to note that array-index starts with 0. Declaration of an array is of the form as shown in line 7 of fig-33.

PROGRAMMING FUNDAMENTALS

```
1.    <html>
2.      <head>
3.        <title>Arrays in JavaScript</title>
4.      </head>
5.      <body>
6.        <script type="text/javascript">
7.                var Arr = [4, 2, 5, 1, 3];
8.                document.write("Array is:", Arr);
9.        </script>
10.     </body>
11.   </html>
```

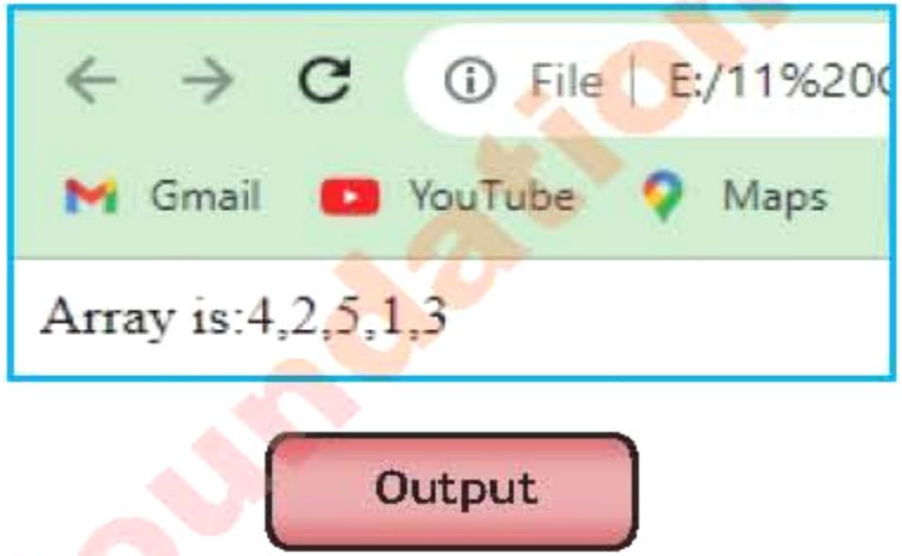


Fig-33: Array declaration and initialization in a single line.

PROGRAMMING FUNDAMENTALS

ACTIVITY

Verbal Questions:

Q. What is Iterative Statement?

Q. What is For Loop?

Q. What is an Array?

AFL STRATEGIES

Class Discussion,

Brainstorming,

Feedback and Reflection

ASSIGNMENT

“Write down the code given in Fig-33 and Fig-34 on Textbook page No 116 in your computer notebooks.”

HOME WORK

Reading Text Book Page Number 114- 117

THANK
YOU