SUPERIOR UNIVERSITY

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ROLL_ NO : 022

SUBJECT: DSA LAB

LAB NO 1

1. **Task: Implement a function that finds the maximum value in an array of size n. Determine its time complexity and explain why it is O(n).**

```cpp
#include <iostream>

using namespace std

int findMax(int arr[], int n) {

    int maxVal = arr[0];

    for (int i = 1; i < n; i++) if (arr[i] > maxVal) maxVal = arr[i];

    return maxVal;

}

int main() {

    int arr[] = {3,5,2,8,1};

    int n = sizeof(arr) / sizeof(arr[0]);

    cout << "Maximum  " << findMax(arr, n) << endl;
```

```
    return 0;

}
```

1. int findMax(int arr[], int n): Function to find the maximum value in the array.
2. for (int i = 1; i < n; i++): Loop to traverse the array.
3. if (arr[i] > maxVal): Condition to check and update the maximum