DATA STRUCTURES

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COURSE CODE : CSA0312

TOPIC : ARRAY & LINKED LIST

#smallest positive number missing from the array.

INPUT :-

```
#include <stdio.h>


int segregate(int arr[], int size) {
    int j = 0, i;
    for (i = 0; i < size; i++) {
        if (arr[i] <= 0) {
            int temp = arr[i];
            arr[i] = arr[j];
            arr[j] = temp;
            j++;
        }
    }
```

```
    return j;
}

int findMissingPositive(int arr[], int size) {
    int i;
    for (i = 0; i < size; i++) {
        int val = abs(arr[i]);
        if (val- 1 < size && arr[val- 1] > 0) {
            arr[val- 1] =-arr[val- 1];
        }
    }
    for (i = 0; i < size; i++) {
        if (arr[i] > 0)
            return i + 1;
    }
    return size + 1;
}

int findMissing(int arr[], int size) {
    int shift = segregate(arr, size);
    return findMissingPositive(arr + shift, size- shift);
}

int main() {
    int arr[] = {2, 3, 7, 6, 8,-1,-10, 15};
    int size = sizeof(arr) / sizeof(arr[0]);
```

```
    int missing = findMissing(arr, size);
    printf("The smallest positive missing number is %d\n", missing);
    return 0;
}
```

OUTPUT :-

```
The smallest positive missing number is 1


=== Code Execution Successful ===
```

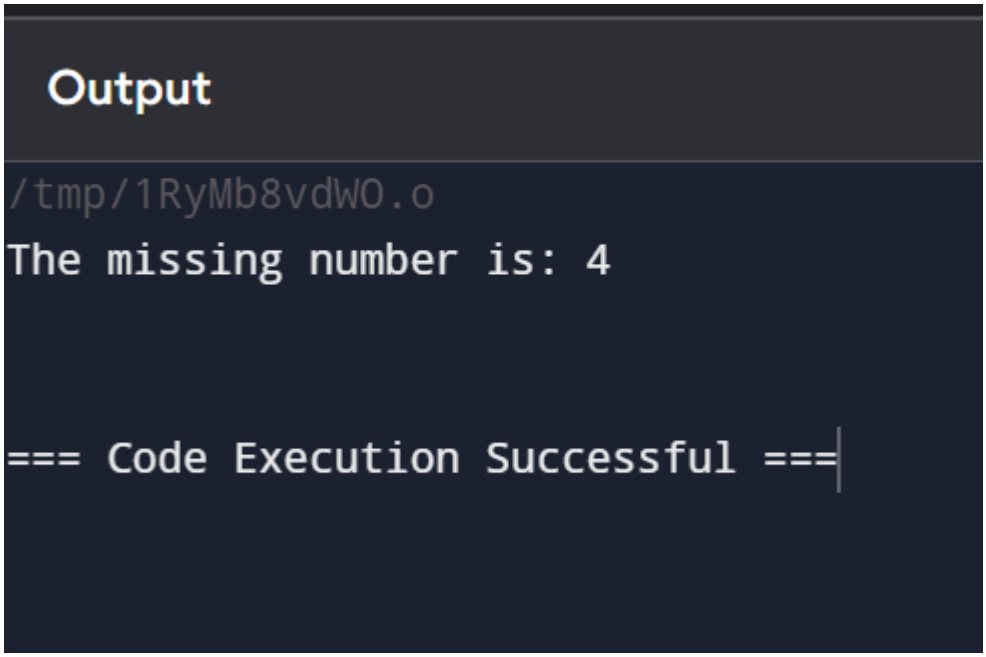
Finding missing element

INPUT :-

```
#include <stdio.h>

int findMissing(int arr[], int N) {
    int totalSum = (N * (N + 1)) / 2;
    int arraySum = 0;

    for (int i = 0; i < N- 1; i++) {
        arraySum += arr[i];
    }

    return totalSum- arraySum;
}
```

```
int main() {
    int N = 5;
    int arr[] = {1, 2, 3, 5};

    int missing = findMissing(arr, N);
    printf("The missing number is: %d\n", missing);

    return 0;
}
```

OUTPUT :-



#Finding odd number in linked list

INPUT :-

```
#include <stdio.h>
#include <stdlib.h>
```

```
struct Node {
    int data;
    struct Node* next;
};

struct Node* newNode(int data) {
    struct Node* node = (struct Node*)malloc(sizeof(struct Node));
    node->data = data;
    node->next = NULL;
    return node;
}

void printOddNumbers(struct Node* head) {
    struct Node* temp = head;
    while (temp != NULL) {
        if (temp->data % 2 != 0) {
            printf("%d ", temp->data);
        }
        temp = temp->next;
    }
}

int main() {
    struct Node* head = newNode(1);
    head->next = newNode(2);
```

```
    head->next->next = newNode(3);
    head->next->next->next = newNode(7);

    printOddNumbers(head);

    return 0;
}
```

OUTPUT :-