

CONTINUOUS ASSESSMENTS (C.A)-3

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ROLL NO. :- RD2215B50
SECTION :- D2215
GROUP :- 2

Q.1. Write a program to implement the concept of MAX heap.

Ans: -

```
#include <iostream>
using namespace std;

#define MAX_SIZE 100

class MaxHeap {
private:
    int heap[MAX_SIZE];
    int size;

public:
    MaxHeap() {
        size = 0;
    }

    void insert(int value) {
        if (size == MAX_SIZE) {
            cout << "Heap is full. Cannot insert element." << endl;
            return;
        }
    }
```

```
heap[size] = value;
```

```
int i = size;
```

```
while (i > 0 && heap[(i-1)/2] < heap[i]) {
```

```
    swap(heap[i], heap[(i-1)/2]);
```

```
    i = (i-1)/2;
```

```
}
```

```
size++;
```

```
}
```

```
int getMax() {
```

```
    if (size == 0) {
```

```
        cout << "Heap is empty." << endl;
```

```
        return -1;
```

```
    }
```

```
    return heap[0];
```

```
}
```

```
void printHeap() {
```

```
    for (int i = 0; i < size; i++) {
```

```
        cout << heap[i] << " ";
```

```
    }
```

```
    cout << endl;
```

```
}
```

```
};
```

```
int main() {  
    MaxHeap heap;  
  
    heap.insert(5);  
    heap.insert(3);  
    heap.insert(8);  
    heap.insert(1);  
    heap.insert(9);  
  
    heap.printHeap();  
  
    cout << "Max: " << heap.getMax() << endl;  
  
    return 0;  
}
```

OUTPUT

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
9 8 5 1 3  
Max: 9  
PS D:\VS CODE\DSA\EXAM>
```