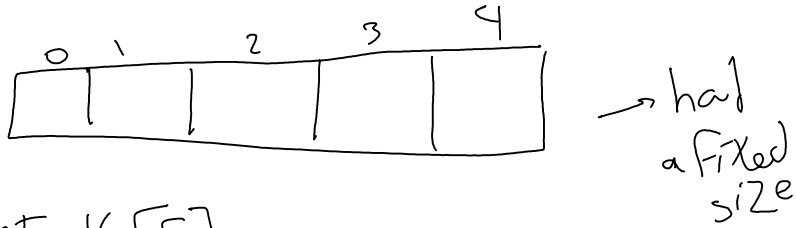


Thursday, March 3, 2022 8:24 PM



```
int arr[5];
```

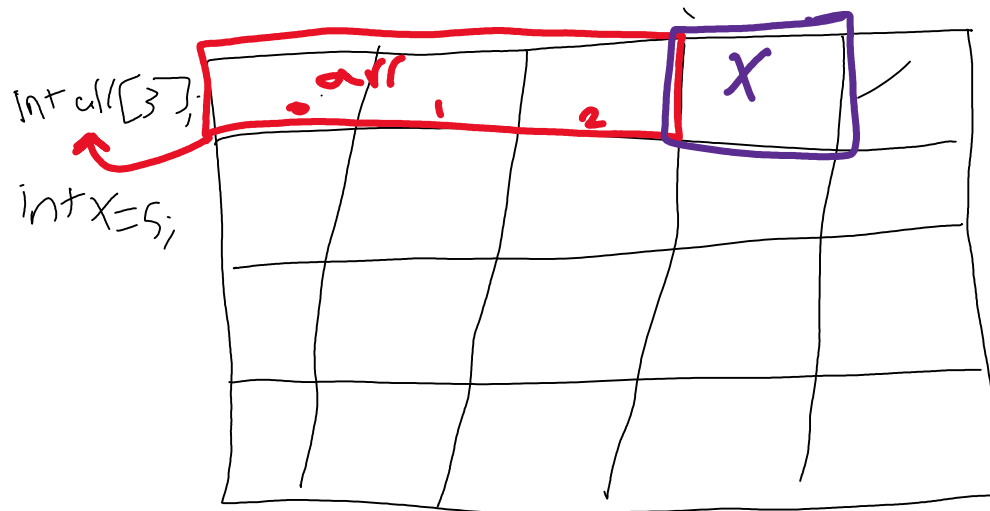
```
arr[0] = 10;
```

```
arr[1] = 20;
```

```
...
```

```
arr[4] = 90;
```

Continuous values



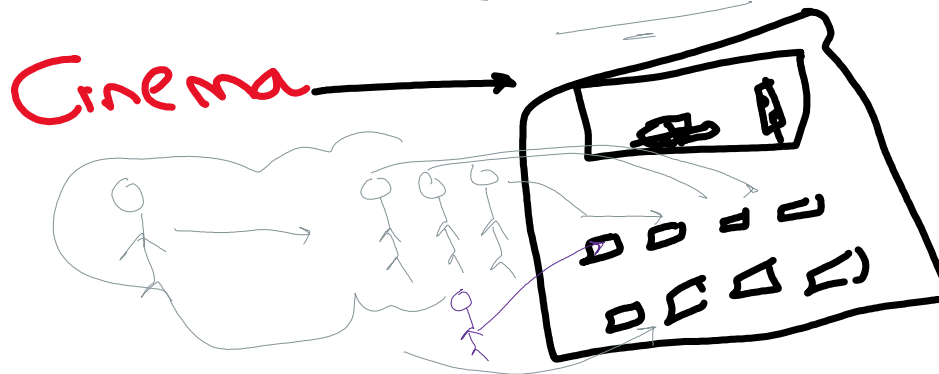
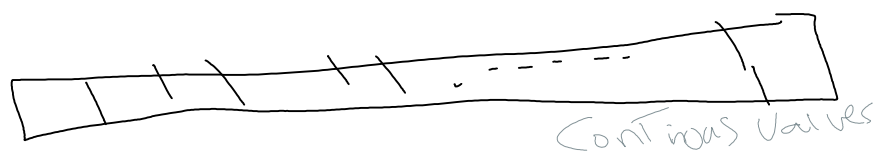
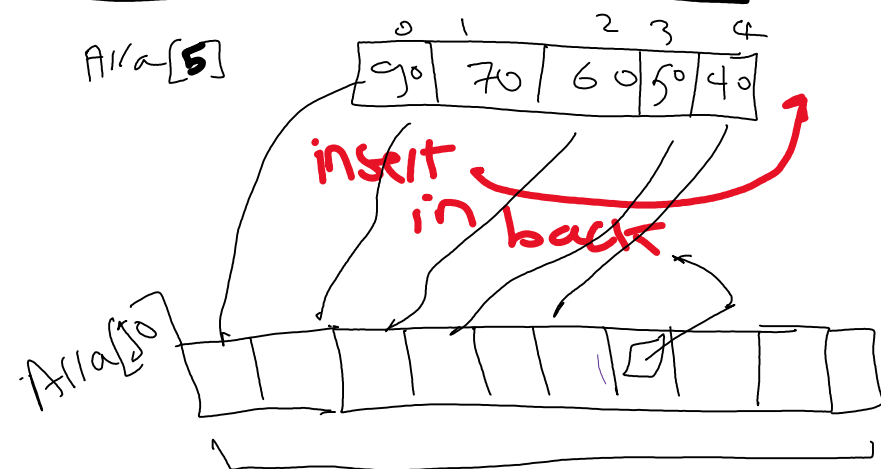
memory → RAM
"global local"

Concept

Stack: LIFO → Last input First output

Queue: FIFO → First input first output

Dynamic Arrays "Vectors"



```

1 #include <iostream>
2
3 using namespace std;
4
5 int main()
6 {
7
8     string messenger[4];
9     messenger[0] = "Hello";
10    messenger[1] = "How are you?";
11    messenger[2] = "What about your job?";
12    messenger[3] = "Where we will go today?";
13
14    for (int i = 0; i < 4; i++) {
15        cout << messenger[i] << endl;
16    }
17
18 }
19
20
21

```

```

main.cpp x
2  #include<array>
3  #include<algorithm>
4  using namespace std;
5
6  int main()
7  {
8
9      array<int ,5>student_array;
10     student_array[0]=90;
11     student_array[1]=80;
12     student_array[2]=70;
13     student_array[3]=20;
14     student_array[4]=100;
15
16
17
18
19     cout<<"Array .front:"<<student_array.front()<<endl;
20     cout<<"Array .back:"<<student_array.back()<<endl;
21
22     cout<<"The first address:"<<student_array.begin()<<endl;
23     cout<<"Last address:"<<student_array.end()<<endl;
24
25     for(auto iter=student_array.begin();iter!=student_array.end();iter++){
26         cout<<*iter<<endl;
27     }
28
29     for(auto elem:student_array){
30         cout<<elem<<endl;
31     }
32
33
34     cout<<"Sorting " <<endl;
35
36     sort(student_array.begin(),student_array.end());
37     for(auto elem:student_array){
38         cout<<elem<<endl;
39     }
40

```

```

cout<<student_array.at(0)<<endl;
cout<<student_array.size()<<endl;

```

```

x
#include <iostream>
#include<array>
#include<algorithm>
using namespace std;

int main()
{
    array<int ,5>student_array{1,2,3};
    student_array[0]=90;
    student_array[1]=80;
    student_array[2]=70;
    student_array[3]=20;
    student_array[4]=100;

    reverse(student_array.begin(),student_array.end());
    for(auto elem:student_array){
        cout<<elem<<endl;
    }
}

```

```

"C:\Users\THE LAPTOP SHOP\Documents\stflbin\Debug\stl.exe"
100
20
70
80
90
90

Process returned 0 (0x0)   execution time : 0.025 s
Press any key to continue.

```

Search (N) → low
 Sort (N) → bubble sort
 $O(1)$ → insert delete
 Random Access

MP3 Player Angam:

✓
Create album

Push-back

Pop back

↙ Vector

```
main.cpp x
1 #include <iostream>
2 #include <array>
3 #include <algorithm>
4 #include <vector>
5 using namespace std;
6
7 int main()
8 {
9     vector<int> student_vector{90, 80, 70, 60};
10
11     student_vector.push_back(50);
12     student_vector.pop_back();
13     student_vector.pop_back();
14
15     for (auto velem: student_vector)
16         cout << velem << endl;
17
18
19
20
21 }
```

"C:\Users\THE LAPTOP SHOP\Documents\stf\bin\Debug\stf.exe"

90
80
70

Process returned 0 (0x0) execution time : 0.058 s
Press any key to continue.

```
main.cpp x
1 #include <iostream>
2 #include <algorithm>
3 #include <vector>
4 using namespace std;
5
6 int main()
7 {
8     vector<int> student_vector{90, 80, 70, 60};
9
10     cout << student_vector.capacity() << endl;
11
12     student_vector.push_back(50);
13     cout << student_vector.capacity() << endl;
14
15
16
17
18
19
20
21 }
```

"C:\Users\THE LAPTOP SHOP\Documents\stf\bin\Debug\stf.exe"

4
8

Process returned 0 (0x0) execution time : 0.049 s
Press any key to continue.

```
main.cpp x
1 #include <iostream>
2 #include <algorithm>
3 #include <vector>
4 using namespace std;
5
6 int main()
7 {
8     vector<int> student_vector{90, 80, 70, 60};
9
10     cout << student_vector.capacity() << endl;
11
12     student_vector.push_back(50);
13     cout << student_vector.capacity() << endl;
14
15
16     sort(student_vector.begin(), student_vector.end());
17 }
```

```
18  
19  
20     for(auto velem:student_vector){  
21         cout<<velem<<endl;  
22     }  
23  
24     cout<<student_vector.at(0)<<endl;  
25  
26     cout<<"Minimum Value:"<<student_vector.front()<<endl;  
27     cout<<"Maximum Value:"<<student_vector.back()<<endl;  
28  
29 }  
30
```

Deque we have to additional functions
Push_front and pop_front