C++ Programming

Practice: Rewriting Hospital System

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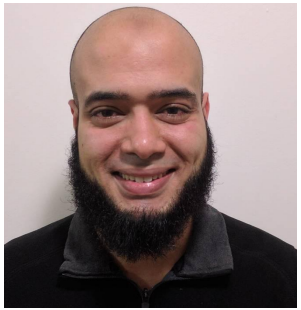

Practice: Rewriting Hospital System

```
 8  struct hospital_queue {
 9      string names[MAX_QUEUE+1];
10      int status[MAX_QUEUE+1];
11      int len;
12      int spec;
13
14      hospital_queue() {..
18      hospital_queue(int _spec) {..
22      bool add_end(string name, int st) {..
28      bool add_front(string name, int st) {..
39      void remove_front() {
40          if (len == 0) {
41              cout << "No patients at the moment. Have rest, Dr\n";
42              return;
43          }
44          cout << names[0] << " please go with the Dr\n";
45
46          // Shift left
47          for (int i = 1; i < len; ++i) {
48              names[i - 1] = names[i];
49              status[i - 1] = status[i];
50          }
51          --len;
52      }
```

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```
struct hospital_queue {
    // We might use priority_queue< pair<int, string> > que;
    // for direct insert front/back
    // But it is slower + won't allow printing

    deque< pair<string, int> > que;
    int spec;

    hospital_queue() {
        spec = -1;
    }

    hospital_queue(int _spec) {
        spec = _spec;
    }
```

Practice: Rewriting Hospital System

```
bool add_end(string name, int st) {
    auto item = make_pair(name, st);
    que.push_back(item);
    return true;
}
bool add_front(string name, int st) {
    auto item = make_pair(name, st);
    que.push_front(item);
    return true;
}

void remove_front() {
    if (que.size() == 0) {
        cout << "No patients at the moment. Have rest, Dr\n";
        return;
    }
    auto item = que.front();
    que.pop_front();
    cout << item.first << " please go with the Dr\n";
}
```

Practice: Rewriting Hospital System

```
struct hospital_system {
    vector<hospital_queue> queues;

    hospital_system() {
        queues = vector<hospital_queue>(MAX_SPECIALIZATION);

        for (int i = 0; i < MAX_SPECIALIZATION; ++i)
            queues[i] = hospital_queue(i);
    }
```

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."