

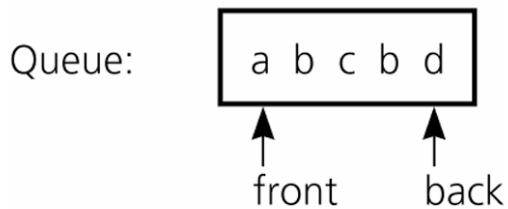
CSCI 2170 STL Queue ADT

Characteristic: FIFO: first in first out

Operations on a queue occur only at its two ends: front and back (rear)

Application:

- Waiting line
- Simulations



STL Queue Methods:

- empty
- size
- front
- back
- push_bak
- pop_front

Application1 : Reading string of characters

Converts digits in a queue into a decimal integer result

Queue may store leading whitespaces

// $247 = 2*100 + 4*10 + 7 = 10*(10*2 + 4) + 7$

```
int Convert(queue <char> aQueue)
{
    int result;
    char ch;
    bool done;

    // remove the leading white space characters
    ch = aQueue.front();
    while (ch == ' ')
    {
        aQueue.pop_front();
        ch = aQueue.front();
    }

    result = 0;
    done = false;
```

```

do {
    result = 10*result + (ch-'0');

    aQueue.pop_front();
    if (!aQueue.empty())
    {
        ch = aQueue.front();
    }
    else
        done = true;
} while (!done && ch <= '9' && ch >= '0');

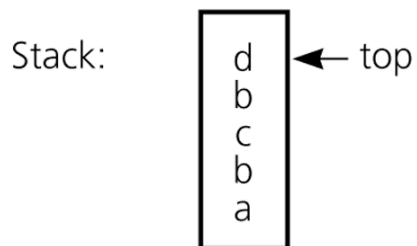
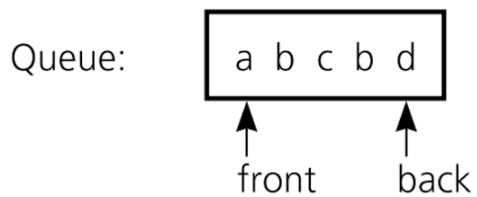
return result;
}

```

Application 2: Recognizing palindrome

A palindrome is a string that reads the same from left to right and from right to left. Use a combination of stack and queue for this problem.

String: abcbd



How to implement this algorithm using STL stack and STL queue?