

Freq AC

7

FILE IO AND MIDTERM REVIEW

Problem Solving with Computers-I

C++

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

int main(){
    cout<<"Hola Facebook!";
    return 0;
}
```

GitHub



THIS

Announcements

- Midterm ~~next~~ Thursday (Oct 24)

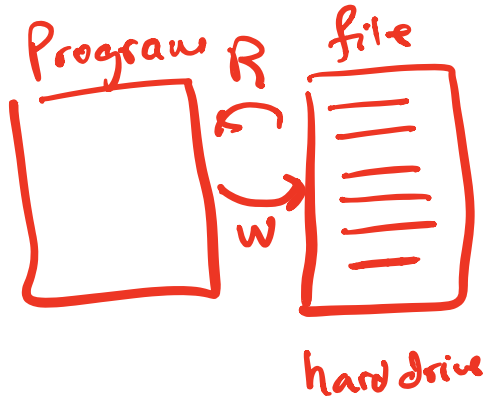
I/O in programs

Different ways of reading data into programs

- cin
- Command line arguments (int main(int argc, char* argv[])
- Read from file

Ways to output data

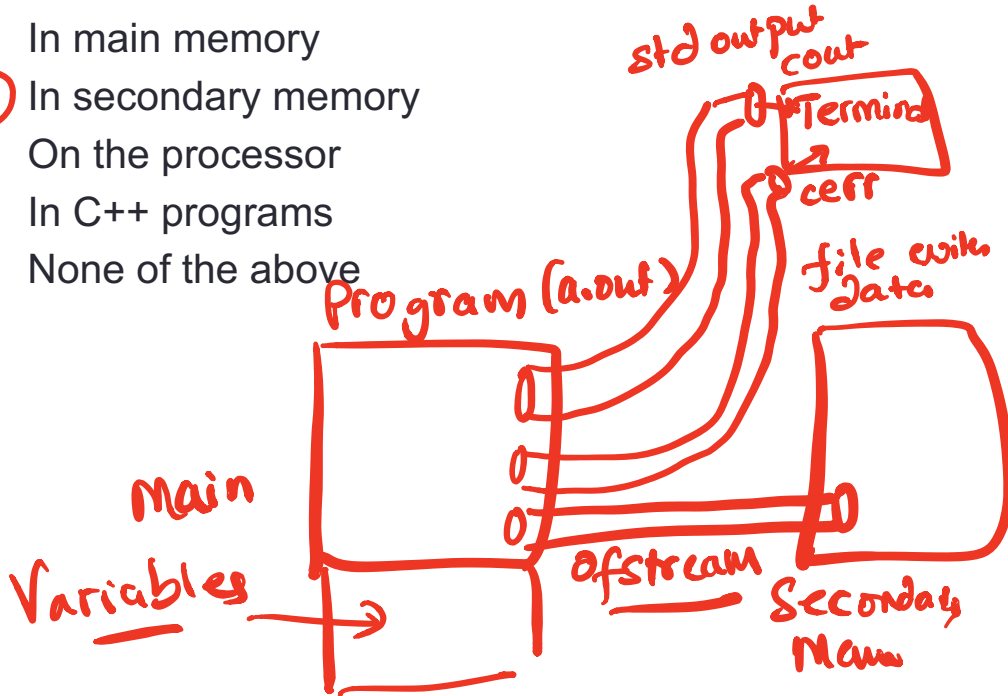
- Standard output: cout
- Standard error: cerr
- Write to file

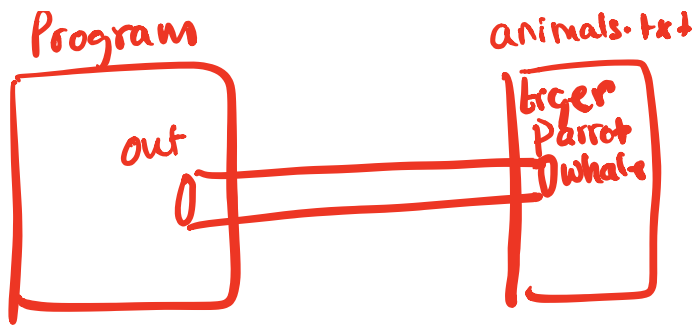


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Where are files stored?

- A. In main memory
- B. In secondary memory**
- C. On the processor
- D. In C++ programs
- E. None of the above





Writing to files

```
#include <fstream>
ofstream ofs; // Create a ofstream object
ofs.open("animals.txt"); //Open a file to write to
ofs<<"Duck\n"<<"Cat\n"<<"Cow\n";
```

Reading from files

- Open a file
- If open fails, exit
- In a loop
 - Read a line
 - If you reach the end of file, break
 - Else process the line that was read
- Close the file

Reading from files

```
#include <fstream>
ifstream ifs; // Create a ifstream object
ifs.open("numbers.txt"); //Open a file to read
if(!ifs){
    // open failed
}
getline(ifs, line); // read a line from the file into a
                    // string line.
                    // If you attempt to read past the end
                    // of file, ifs change to false

// If the file was empty, ifs will be false at this point
ifs.close()
```


FILE IO: Which of the following is correct?

A.

```
while(1){
    getline(ifs, line);
    if (!ifs)
        break;
    cout<<line<<endl;
}
```

C. Both A and B are correct

B.

```
while(ifs){
    getline(ifs, line);
    cout<<line<<endl;
}
```

D. Neither is correct

BIG IDEA: Bits can represent anything!!

Characters

'a'

'b'

'c'

'd'

'e'

N bits can represent at most 2^N things

What is the minimum number of bits required to represent all the letters in the English alphabet in lower case?

- A. 3
- B. 4
- C. 5
- D. 6
- E. 26

With 4 bits, we can generate 2^4 (16) unique bit patterns (not enough to represent 26 things)

With 5 bits, we get 2^5 (32) patterns.

Although we don't need 32 unique bit patterns, we still need a minimum of 5 bits in this case. Cannot have fractional no. of bits

Next time

- Arrays