

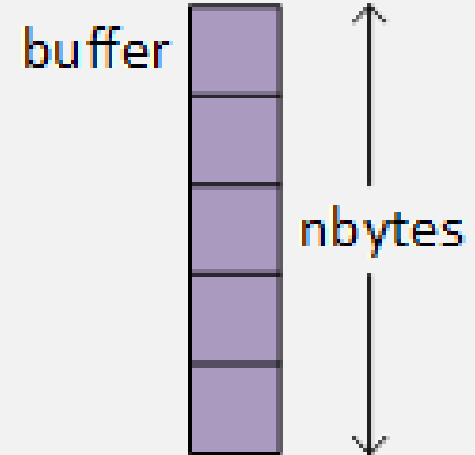


BLOCK I/O

Reading and writing aggregate data

BLOCK read AND write FUNCTIONS

- `ifstream in(in_name, ios::binary);`
- `ofstream out(out_name, ios::binary);`
- `ostream& write(char* buffer, streamsize nbytes);`
- `istream& read(char* buffer, streamsize nbytes);`
- `buffer` is a memory address
- `nbytes` is the number of bytes to transfer





BASIC BLOCK I/O PATTERNS

- `T data;`
- `out.write((char *) &data, sizeof(T));`
- `in.read((char *) &data, sizeof(T));`
- `while (in.read((char *) &data, sizeof(T)))`
 `...`



ARRAY I/O PATTERNS

- `T data[100];`
- ```
for (int i = 0; i < 100; i++)
 out.write((char *) &data[i], sizeof(T));
```
- ```
int i = 0;  
while (i < 100 && in.read((char *) &data[i], sizeof(T)))  
    i++;    // and additional processing
```



EN BLOCK I/O

- `T data[100];`
- `out.write((char *) data, n * sizeof(T));`
- `in.read((char *) data, n * sizeof(T));`
- $0 < n \leq 100$