

Content of First Test

Through chapter 9 (linked lists)

1. Quick theory questions
2. Running time
3. Code Write
4. Code Trace/Read

Quick theory questions

e.g.

- Give signatures
- What is difference between bag and set?
- What is difference between pass-by-alias and pass-by-pointer?

Running time

- One block after another: max of two orders
- Loop: number executed times (average) running time of loop
- An “if” might change things.

Code write

Remember

- Signatures
- Write punctuation legibly
- Initialization list, const's

Code Trace/Read

- For trace: just work through slowly. For recursion maybe draw tree.
- For read: try a couple of small examples. Be accurate.

Sample 1

Give running time of:

```
for(int i=1; i<n*n; i++)  
    if( i==1)  
        for(int j=1; j<n; j*=2)  
            cout << "*";
```

Sample 2

Consider Linked List with dummy node. Complete constructor that creates linked list with vector of data in order.

```
struct Node { double data; Node* next; };  
class ListWithDummy {  
    private:  
        Node* head;  
    public:  
        ListWithDummy ( const vector<double> & C )
```

Sample 3

Give result of $F(3,2)$

```
void F(int A, int B) {  
    cout << A;  
    if( A>1 )  
        F(A-2, B);  
    if( B>1)  
        F(A, B-2);  
    cout << B;  
}
```

Answers?

1. $O(n^2)$

2. 3110231002

3.

```
: head(new Node() ) {  
Node * P = head;  
for( double val : C ) {  
    P->next = new Node( );  
    P = P->next;  
    P->data = val;  
    P->next = nullptr;  
} }
```