## const

| | |
|---|---|
| foo() const | no change private variable |
| foo(const &) | no change the val passed in |

## class

| | |
|---|---|
| do not forget ; | class Name(){\\ }; |
| default constructor | Name(); |
| main function arguments | int main(int argc, char* argv[]) |
| error message | if (!inFile) {std::cerr << “ERROR!!” << std::endl;} |
| class name .h file | Name::getValue(){} |
| read file | |

```
ifstream puzzleStr(argv[1]);
string puzzleLine;
vector<string> puzzleText;
while (puzzleStr.good())
{
puzzleStr >> puzzleLine;
puzzleText.push_back(lower(puzzleLine));
}
```

## Pointers

| | |
|---|---|
| new | delete( [] ) a; |
| int * p, q; | p is int pointer, q is int |
| a[0] | pointer of array a[] |
| a[i]; all equal to | *(a+i) |
| array is a pointer | p[3] = *(p+3) |
| int list[10]; int*p=list; | p = list[0]; |
| p = &x; | take the address of x to p |
| *p = 13; | follow the pointer |
| *p = a; all equal to | p = &a; |
| Delete an array of pointer | |

```
for (int i = 0; i < rows; i++)
delete [] a[i];
delete [] a;
```

## dynamic memory allocation

| | |
|---|---|
| Automatic memory | allocates space on the stack and stores there |
| Static memory | They are not eliminated when they go out of scope |
| Dynamic memory | explicitly allocated (on the heap) as needed |
| new | new TYPE; |
| loop delete | only for two heaps; |



Sponsored by **Readable.com**
Measure your website readability!
https://readable.com