

Header

```
#include <iostream>
#include <iomanip>
#include <string>
#include <cmath>
#include <cstdlib>
#include <fstream>
#include <sstream>
#include <vector>
```

Function Prototypes

```
void functionName(const double[], int, int&);
int anotherName(int scores[][3], int size);
```

Function Calls

```
functionName(temperatures, size, high);
anotherName(scores, SIZE);
```

Problems

Subscript out of bounds

Too many or few loops

No decimals

Multiply by 1.0 or change double

error: expected unqualified-id before

Use instance instead of type

String Manipulation

str.substr(pos, len)	returns string from pos
str.find(str1)	returns location index
str.find(str1, pos)	starts at pos then finds
str.insert(pos, str1)	inserts str1 at pos
str.erase(pos, length)	removes length at pos

Functions

Random #	(rand() % (max-min+1))+min
Power	pow(base, exp)
Abs Value Int	abs(num)
Abs Value Double	fabs(num)

OOP

vector	.push_back()
	.resize()
fstream	.open()
	.fail()
inserting filename	.c_srt()

Seeding the Function

```
cin>>seed;
srand(seed);
```

Switch

```
switch(trigger){
    case 0: break;
    case 1: break;
    default: break;
}
```

Bubble Sort for Array

```
int temp;
bool sorted = 0;
while(!sorted){
    sorted=1;
    for (i=1;i<num_elements;i++){
        if(arr[i-1]>arr[i]){
            temp=arr[i-1];
            arr[i-1]=arr[i];
            arr[i]=temp;
            sorted=0;
        }
    }
}
```

Infinite Loop

```
while (true){
    break;
}
```



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Insert and Erase / Fix

```
void fixSentence(string& sentence){
    int i = sentence.find(" ");
    string firstnoun;
    firstnoun = sentence.at(i+1);

    if (firstnoun == "a"&&"e"&&"i"&&"o"&&"u"){
        sentence.insert(1,"n");
    }

    else{
        int j = sentence.find(" ", i + 1);
        int k = sentence.find(" ", j + 1);
        int verblength = (k - (j+1));
        sentence.erase(j+1, verblength);
        sentence.insert(j+1, selectWord(VERBS, NUM));
    }
}
```

Extract from string stream

```
watch = "";
string tempstr;
sin>>day>>month>>year>>clouds>>temp>>wind>>watch;
while (sin>>tempstr){
    watch = watch + " " + tempstr;
}
```



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