

# NATIONAL UNIVERSITY OF THE ALTIPLANO

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## ENTROPY

### 1 CODE IN C++:

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

double calcularEntropia(int frecuencias[], int total) {
    double entropia = 0.0;
    for (int i = 0; i < 256; ++i) {
        if (frecuencias[i] > 0) {
            double probabilidad = static_cast<double>(frecuencias[i]) / total;
            entropia -= probabilidad * log2(probabilidad);
        }
    }
    return entropia;
}

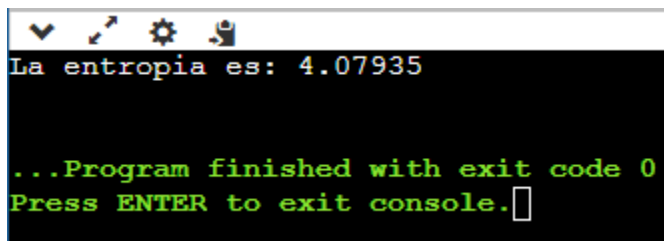
int main() {

    int frecuencias[256] = {10, 15, 7, 5, 20, 3, 2, 18, 4, 6, 12, 14, 1, 16, 19, 5, 10, 15, 20, 25, 30};
    int total = 0;
    for (int i = 0; i < 256; ++i) {
        total += frecuencias[i];
    }
    double entropia = calcularEntropia(frecuencias, total);

    cout << "La entropia es: " << entropia << endl;

    return 0;
}
```

### 2 RESULT IN C++:



```
La entropia es: 4.07935

...Program finished with exit code 0
Press ENTER to exit console.
```