

# ANALYSIS WITH PROGRAMMING

cout << "let's do some analysis and programming" << endl;

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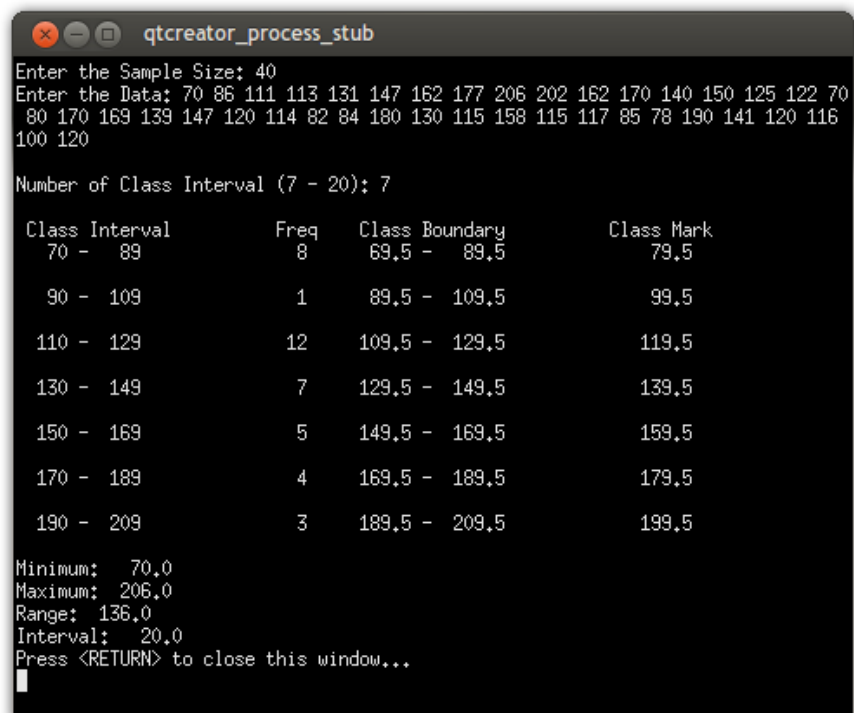
*C/C++ Programming*

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The first 40 raw data of Systolic Blood pressure (in mmHg) of Simplified Biostatistics by Abubakar S. Asaad is utilize in the demonstration below.

Output:



```
qtcreator_process_stub
Enter the Sample Size: 40
Enter the Data: 70 86 111 113 131 147 162 177 206 202 162 170 140 150 125 122 70
80 170 169 139 147 120 114 82 84 180 130 115 158 115 117 85 78 190 141 120 116
100 120

Number of Class Interval (7 - 20): 7

Class Interval      Freq  Class Boundary      Class Mark
70 - 89             8      69,5 - 89,5         79,5
90 - 109            1      89,5 - 109,5        99,5
110 - 129           12     109,5 - 129,5       119,5
130 - 149           7      129,5 - 149,5       139,5
150 - 169           5      149,5 - 169,5       159,5
170 - 189           4      169,5 - 189,5       179,5
190 - 209           3      189,5 - 209,5       199,5

Minimum: 70.0
Maximum: 206.0
Range: 136.0
Interval: 20.0
Press <RETURN> to close this window...
```

C Codes:

```
#include <stdio.h>
#include <math.h>

int main()
{
    int i, j, n, nci, freq = 0;
    float temp, min, max, range, interval, cibase;

    printf("Enter the Sample Size: ");
```

```
scanf("%d", &n);

float x[n];
printf("Enter the Data: ");
for(i = 0; i < n; ++i){
    scanf("%f", &x[i]);
}

printf("\n");
printf("Number of Class Interval (7 - 20): ");
scanf("%d", &nci);

if(nci >= 7 && nci <= 20){
    for(i = 0; i < n; ++i){
        for(j = 1 + i; j < n; ++j){
            if(x[i] > x[j]){
                temp = x[i];
                x[i] = x[j];
                x[j] = temp;
            }
        }
    }
}

printf("\n");

min = x[0];
max = x[n - 1];
range = max - min;
interval = ceil(range / nci);

printf(" Class Interval \t");
printf(" Freq \t");
printf(" Class Boundary \t");
printf(" Class Mark \n");

cibase = min;
while(cibase <= max){
    printf("%5.0f - %4.0f\t\t", cibase, (cibase - 1) + interval);
    freq = 0;
    for(i = 0; i < n; ++i){
        if(x[i] >= cibase && x[i] <= ((cibase - 1) + interval)){
            ++freq;
        }
    }
    printf("%4d\t", freq);
    printf("%6.1f - %6.1f\t\t", cibase - 0.5, (cibase - 0.5) + interval);
    printf("%9.1f\t", (cibase + ((cibase - 1) + interval)) / 2);
    printf("\n\n");
}
```

```

        cibase = cibase + interval;
    }

    printf("Minimum: %6.1f\n", min);
    printf("Maximum: %6.1f\n", max);
    printf("Range: %6.1f\n", range);
    printf("Interval: %6.1f\n", interval);
}
else{
    printf("ERROR: Choose Between 7 and 20\n");
    printf("Try Again!\n");
}

return 0;
}

```

### C++ Codes:

```

#include <iostream>
#include <iomanip>
#include <math.h>

using namespace std;

int main()
{
    int i, j, n, nci, freq = 0;
    float temp, min, max, range, interval, cibase;

    cout << "Enter the Sample Size: ";
    cin >> n;

    float x[n];
    cout << "Enter the Data: ";
    for(i = 0; i < n; ++i){
        cin >> x[i];
    }

    cout << endl;
    cout << "Number of Class Interval (7 - 20): ";
    cin >> nci;

    if(nci >= 7 && nci <= 20){
        for(i = 0; i < n; ++i){
            for(j = 1 + i; j < n; ++j){
                if(x[i] > x[j]){
                    temp = x[i];
                    x[i] = x[j];

```

```

        x[j] = temp;
    }
}

cout << endl;

min = x[0];
max = x[n - 1];
range = max - min;
interval = ceil(range / nci);

cout << " Class Interval \t";
cout << " Freq \t";
cout << " Class Boundary \t";
cout << " Class Mark " << endl;

cibase = min;
while(cibase <= max){
    cout.width(5); cout << right << cibase << " - ";
    cout.width(4); cout << right << (cibase - 1) + interval << "\t\t";
    freq = 0;
    for(i = 0; i < n; ++i){
        if(x[i] >= cibase && x[i] <= ((cibase - 1) + interval)){
            ++freq;
        }
    }
    cout.width(4); cout << right << freq << "\t";
    cout.width(6); cout << right << cibase - 0.5 << " - ";
    cout.width(5); cout << right << (cibase - 0.5) + interval << "\t\t";
    cout.width(9); cout << right << (cibase + ((cibase - 1) + interval)) / 2 << "\t";
    cout << "\n" << endl;
    cibase = cibase + interval;
}

cout.width(6); cout << "Minimum: " << setprecision(5) << right << min << endl;
cout.width(6); cout << "Maximum: " << setprecision(5) << right << max << endl;
cout.width(6); cout << "Range: " << setprecision(5) << right << range << endl;
cout.width(6); cout << "Interval: " << setprecision(5) << right << interval << endl;
}
else{
    cout << "ERROR: Choose Between 7 and 20" << endl;
    cout << "Try Again!" << endl;
}

return 0;
}

```

**Labels**

C and CPP, Descriptive Statistics,