Frequency Distribution
C/C++ Programming

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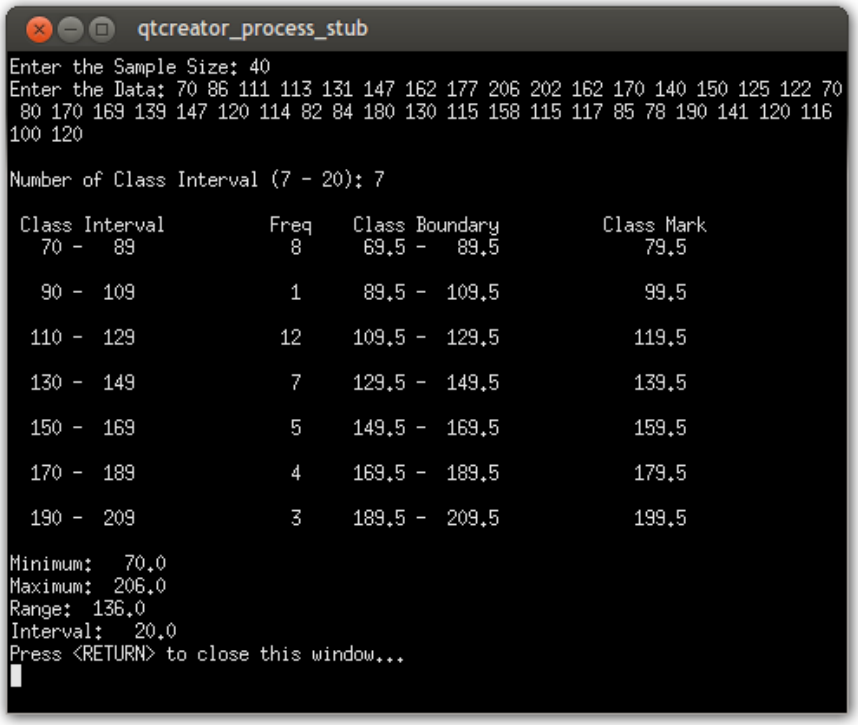
The first 40 raw data of Systolic Blood pressure (in mmHg) of Simplified Biostatistics by Abubakar S. Asaad is utilize in the demonstration below.

Output:



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,