

ANALYSIS^{WITH}PROGRAMMING

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

<http://alstatr.blogspot.com/>

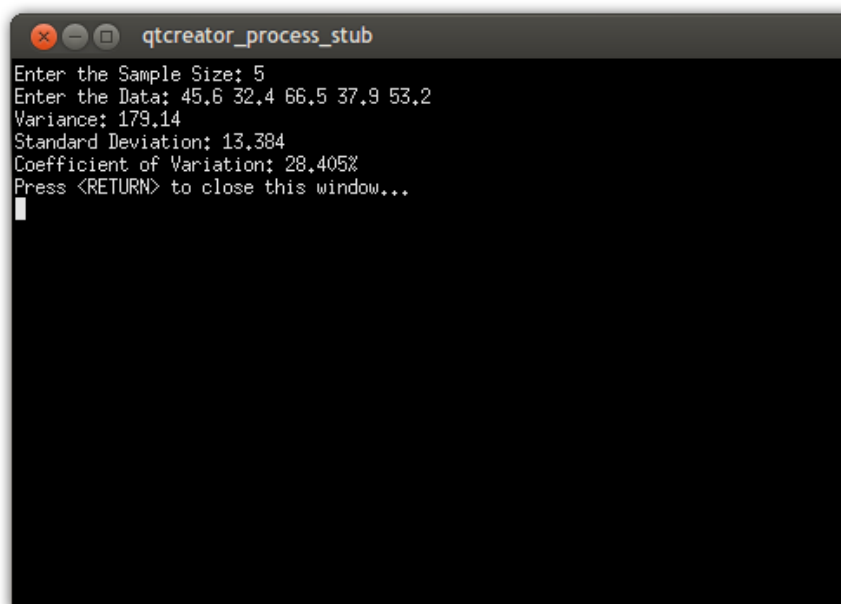
VARIANCE, STANDARD DEVIATION AND COEFFICIENT OF VARIATION

C/C++ Programming

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Output:



```
qtcreator_process_stub
Enter the Sample Size: 5
Enter the Data: 45.6 32.4 66.5 37.9 53.2
Variance: 179.14
Standard Deviation: 13.384
Coefficient of Variation: 28.405%
Press <RETURN> to close this window...
```

C Codes:

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

int main()
{
    int i, n;
    float mean, sd, var, dev, sum = 0.0,
    sdev = 0.0, cv;

    printf("Enter the Sample Size: ");
    scanf("%d", &n);

    float x[n];
```

```
printf("Enter the Data: ");
for(i = 1; i <= n; ++i){
    scanf("%f", &x[i]);
    sum = sum + x[i];
}

mean = sum / n;

for(i = 1; i <= n; ++i){
    dev = (x[i] - mean)*(x[i] - mean);
    sdev = sdev + dev;
}

var = sdev / (n - 1);
sd = sqrt(var);
cv = (sd / mean) * 100;

printf("Variance: %6.3f\n", var);
printf("Standard Deviation: %6.3f\n", sd);
printf("Coefficient of Variation: %6.3f%%\n", cv);

return 0;
}
```

C++ Codes:

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

using namespace std;

int main()
{
    int i, n;
    float mean, sd, var, dev, sum = 0.0,
    sdev = 0.0, cv;

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

    float x[n];
    cout << "Enter the Data: ";
    for (i = 1; i <= n; ++i){
        cin >> x[i];
        sum = sum + x[i];
    }
```

```
mean = sum / n;

for(i = 1; i <= n; ++i){
    dev = (x[i] - mean)*(x[i] - mean);
    sdev = sdev + dev;
}

var = sdev / (n - 1);
sd = sqrt(var);
cv = (sd / mean) * 100;

cout << "Variance: ";
cout << setprecision(5) << var << endl;
cout << "Standard Deviation: ";
cout << setprecision(5) << sd << endl;
cout << "Coefficient of Variation: ";
cout << setprecision(5) << cv << "%" << endl;

return 0;
}
```

Labels

C and CPP, Descriptive Statistics,