Variance, Standard Deviation and Coefficient of Variation

C/C++ Programming

4 of September 2013

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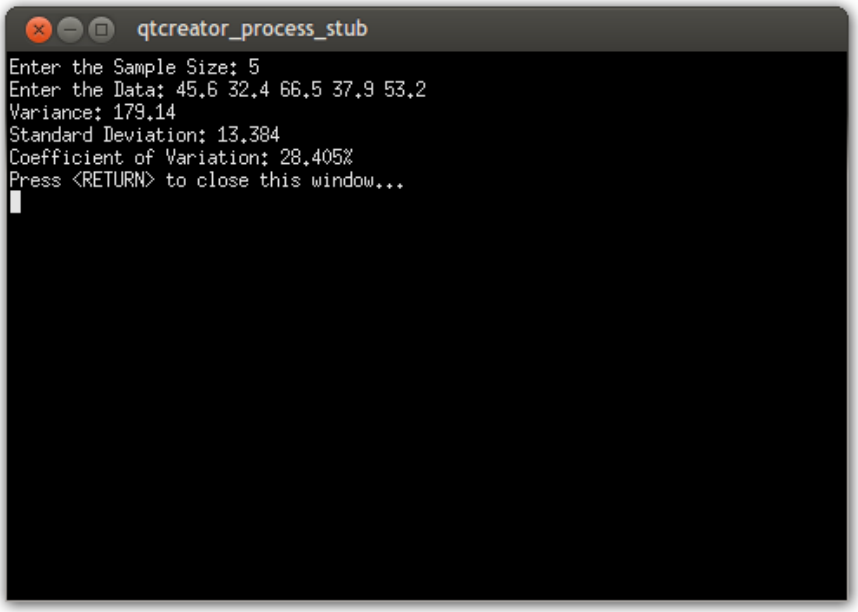
Output:



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,