README for lab 5

In this lab the program I used the hypothesis testing method to test the mean value of the data and compared that with the theoretical power.

The folder contains:
1.power.cpp: which is the code of the experimental calculation of power.
2.report.pdf: which is the report of lab 5
3.README: which is the documentation.
4.makefile: which helps the code compilation

To compile and run the code:

Linux environment is recommended.
To compile the code: type make in terminal, you can then find the power.x in your working directory
To run the code: type ./power.x in the terminal.

Output:
For n=100, the acceptance(1) and rejectance(0) are stored in an array for each of the 100 samples:
1 1 1 1 1 1 1 0 1 1 1 1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 0 1 0 1 0 1 1 0 1 1 1 1 1
0 1 1 1 1 1 1 1 1 1 0 0 1 0 1 1 1 0 1 1 1 1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 0 1
1 1 0 1 0 1 1 1 1 1 1 0 0 1 1 1 1 1 1 1
for each n=50 100 250 500 1000 calculate the poportion of rejection:
0.11 0.17 0.39 0.61 0.86

Output for user defined test cases:
Test 1: 100 samples

For n=100, the acceptance(1) and rejectance(0) are stored in an array for each of the 100 samples:
1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 1 1 1 0 1 1 0 1 1 1 1 1 1 1 1 0 1 0 1 1 1 1
1 1 1 1 1 1 1 1 1 1 0 1 1 1 1 1 0 1 0 1 0 1 0 1 1 1 1 0 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 0 1 1 0 1 1 1

for each n=50 100 250 500 1000 calculate the poportion of rejection:
0.16 0.16 0.38 0.65 0.89

Test 2: 10000 samples

For n=100, the acceptance(1) and rejectance(0) are stored in an array for each of the 100 samples:
1 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 1 1 0 1 1 0 1 1 1
1 0 1 1 1 1 1 1 1 1 1 1 0 0 1 0 0 1 0 1 1 0 1 1 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 0 1 1 1 1 0 0 1 0 1 1 0 0 1 1 1
for each n=50 100 250 500 1000 calculate the poportion of rejection:
0.132439 0.184201 0.350578 0.620158 0.890197

Test3: 1000000 samples

For n=100, the acceptance(1) and rejectance(0) are stored in an array for each of the 100 samples:
1 1 0 1 1 1 0 1 1 1 1 1 1 1 0 1 1 1 1 1 1 1 0 0 0 1 1 1 1 0 1 1 1 1 0 0 1 0 1 0
1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 1 1 1 1 0 1 0 0 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
for each n=50 100 250 500 1000 calculate the poportion of rejection:
0.131833 0.183195 0.349533 0.621167 0.88954