

**Programming language version:** C++ (2011)

**Implement Steps:** First, read in the data. Put the data into the matrix array, and use the concept of QR decomposition to do calculation. We know that every column of Q is unit vector, so I create U matrix, where  $Q = U / (\text{length of each column vector of } A)$ .

**How to execute your code:**

```
g++ -o qr-decomposition qr-decomposition.cpp  
./qr-decomposition
```

The .exe file will generate output.txt, and the result is inside of it.

**Reference:**

<https://math.stackexchange.com/>

<https://stackoverflow.com/>