MA 423 – Matrix Computations

Lab – 6

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1 QUESTION - 4:

The output for 3 iterations and following values of m and n are:

```
Enter no of iterations = 3
==========  Iteration - 1  ==========
Enter n = 4
Enter m = 2
|| Q*R - A  ||          =    1.9651e-16
|| Q'*Q - I ||          =    3.7905e-16
tril(R, -1)             =      0
|| R - R_hat ||         =    2.2204e-16
|| Q - Q_hat ||         =    3.6002e-16

==========  Iteration - 2  ==========
Enter n = 4
Enter m = 4
|| Q*R - A  ||          =    4.3950e-16
|| Q'*Q - I ||          =    3.8156e-16
tril(R, -1)             =      0
|| R - R_hat ||         =    6.3790e-16
|| Q - Q_hat ||         =    5.7004e-16

==========  Iteration - 3  ==========
Enter n = 6
Enter m = 3
|| Q*R - A  ||          =    2.8561e-16
|| Q'*Q - I ||          =    1.5166e-16
tril(R, -1)             =      0
|| R - R_hat ||         =    7.5834e-16
|| Q - Q_hat ||         =    7.9214e-16
```

Observation:

We can observe that all the required quantities are in proximity of the unit round off (u). Hence the implemented solution correctly utilises `reflect(x)` and `appreflect(x)` functions to write `reflectqr(A)`.