Question 2:

The processor : 2.8 GHz Quad-Core Intel Core i7

g++ version: gcc version 9.2.0 (Homebrew GCC 9.2.0_3)

```
g++ -O0 -std=c++11 MMult0.cpp
```

Result:

Dimension	Time	Gflop/s	GB/s
20	0.001907	0.419507	0.839014
40	0.015741	0.406582	0.813163
60	0.052538	0.411131	0.822262
80	0.122375	0.418386	0.836772
100	0.222564	0.449309	0.898618
120	0.382694	0.451536	0.903071
140	0.608225	0.451149	0.902298
160	0.924202	0.443193	0.886386
180	1.293840	0.450751	0.901503
200	1.787481	0.447557	0.895114
220	2.421030	0.439813	0.879626
240	3.202569	0.431653	0.863307
260	3.957424	0.444127	0.888255
280	5.036437	0.435864	0.871727
300	6.109998	0.441899	0.883797
320	7.804557	0.419857	0.839715
340	8.981343	0.437618	0.875237
360	10.643454	0.438354	0.876708
380	12.496774	0.439089	0.878179
400	15.174045	0.421773	0.843546
420	16.957815	0.436896	0.873792
440	19.525698	0.436266	0.872532
460	22.407809	0.434384	0.868769
480	26.084598	0.423974	0.847949
500	29.216556	0.427840	0.855679
520	32.849979	0.428031	0.856061
540	37.013520	0.425423	0.850846
560	41.651579	0.421631	0.843262
580	45.713435	0.426815	0.853631

```
g++ -O3 -std=c++11 MMult0.cpp

Result:

Dimension       Time    Gflop/s       GB/s
        20   0.000213   3.755869   7.511737
        40   0.002198   2.911738   5.823476
        60   0.007185   3.006263   6.012526
        80   0.018110   2.827167   5.654335
       100   0.036892   2.710615   5.421230
       120   0.066066   2.615566   5.231133
       140   0.110426   2.484922   4.969844
       160   0.181339   2.258753   4.517506
       180   0.239787   2.432159   4.864317
       200   0.334260   2.393346   4.786693
       220   0.448887   2.372089   4.744178
       240   0.581297   2.378130   4.756261
       260   0.743666   2.363427   4.726853
       280   0.961760   2.282482   4.564964
       300   1.315002   2.053229   4.106458
       320   1.622049   2.020161   4.040322
       340   1.789337   2.196568   4.393136
       360   2.129797   2.190631   4.381263
       380   2.513083   2.183454   4.366907
       400   3.129681   2.044937   4.089874
       420   3.597444   2.059462   4.118924
       440   4.088078   2.083718   4.167435
       460   4.721000   2.061767   4.123533
       480   5.573160   1.984368   3.968736
       500   6.094094   2.051166   4.102333
       520   7.566045   1.858408   3.716816
       540   7.828422   2.011440   4.022880
       560   8.558824   2.051871   4.103741
       580   9.902175   1.970395   3.940791
```

Question 3:

```
g++ -O0 -std=c++11 main.cpp

./a.out -n 100
Jacobian Algorithm: 0.017112
Gauss Seidel Algorithm: 0.017512


./a.out -n 10000
Jacobian Algorithm: 1.02228
Gauss Seidel Algorithm: 0.961228
```

```
g++ -O3 -std=c++11 main.cpp
./a.out -n 100
Jacobian Algorithm: 0.001631
Gauss Seidel Algorithm: 0.003061

./a.out -n 10000
Jacobian Algorithm: 0.087084
Gauss Seidel Algorithm: 0.177738
```