**Contents:**

Three files

1. rpf.h - header file
   1. three structures bus,gen and branch are declared.
   2. Three vectors for buses,generators and branches are declared. These vectors are converted to matrices. These matrices are equivalent to Arma::mat
   3. All the constants required for runpf which are equivalent to idx\_bus.m,idx\_gen.m and idx\_branch.m
2. Loadcase.cpp
   1. This file is responsible for parsing the case files given in matlab. At present it is parsing case9.m. Can change the case
   2. Need to specify case, how many attributes for bus, gen and branch
   3. At the end, three matrices bus,gen and branch are filled with case file data.
3. main.cpp
   1. The flow in the main file resembles the runpf code in matlab.
   2. It includes all the functions present in runpf.m are implemented in main.cpp
   3. Comments are written to understand what each part is doing
   4. Most of the vector and matrix manipulation is written using arma library.
   5. I read that armadillo can be integrated with OpenBLAS library to use make it efficient in parallel cores.
   6. Most of the matrix multiplications can be optimized using parallel computing.

\*\* runpf.m implemented till MakeSbus function.The last line is not done as it inviloves multiplying complex matrices which is somehow not supported by armadillo I suppose. I am still trying it.

\*\* One more function newton iteration algorithm should be implemented and that will finish runpf algorithm.

* 1. The output will MakeSbus is exactly similar to Matlab values.

\*\* I am not sure whether that this netbeans project can be run directly in another system. You need to include all libraries of armadillo in libraries.

**Optimise**

1. I read openBLAS can be used **initially** to make matrix operations more efficient in parallel cores.
2. I think, most of the matrix operations can be made efficient though parallel programming may be.