**Methodology**

The original proposed method was of the genetically optimized neural network, (GONN) which followed the principle of genetic optimization for neural network. As the name suggests, the neural network used for classifying the cancer cells were heuristically optimized to find the best possible solution. Although the accuracy of the method was 98.24% it had certain drawbacks. During evolution of neural networks, the networks which when evolved either by crossover or mutation produced a less fit result than their parent were immediately chucked off the list. This prevented any future chances of them performing better than the network selected for the solution pool. We are proposing as to not eliminate the results right at that moment but evolving the rejected pool for ‘N’ number of generations while comparing them to selected solutions after every generation. This can be achieved in various ways. One of them being that the rejected pool being divided into halves and one of the halves being evolved randomly and the other one being operated upon by a heuristic function (such as hill climb) to avoid getting stuck in local maxima and having a quick solution. After formation of every new generation the fitness of all the trees will be calculated. The thing to keep in mind is that the solution pool and the rejected pool after the first generation will be evolved separately and only the fitness function of all the trees will be calculated together. To further optimize the algorithm and reduce the time taken by it we can keep a threshold value of fitness for the networks that are to be evolved in the rejected pool. So that networks below a certain fitness should not be included in the solution space. This will save time as network which have very low fitness even after evolution will be eliminated and the theory of Darwin’s “survival of the fittest” could be followed which is basically the idea behind genetic algorithms.