**-:INTRODUCTION:-**

What is Machine Learning? Machine Learning is a branch in computer science that studies the design of algorithms that can learn. Machine can learn in various ways, such ways are concept learning, function learning or “predictive modeling”, clustering and finding predictive patterns. Machine learning is basically training a machine for a required purpose.

Tennis is basically a game to two persons or four persons playing individually or doubles in two different teams. The game is the one of the most popular game in every country. A match consists of number of sets, mostly 3 and 5 sets match are played. The winner is decided on the basis of the set score. To win a set, you must win at least six games. The games are scored at “love” (or zero) and go up to 40, but actually just four points. From love, the first point is 15, then 30, then 40, then the break point, which wins the game. If suppose , the two teams score is 40-40 then it called Deuce . The match continues to find the winner of the particular on going sub-set . At that time that player makes advantage who win the next point . but still the team will not call as a winner of the sub-set . If the team win the next point also then the team will called as a winner of the sub-set . If the team losse the next point then again the match will back in the deuce position . The match is conducted in four different types of surface like clay, grass, hard, carpet. Each surface has its own characteristics which affect the playing style of the game. The grass court is the fastest surface in the tennis.

Female tennis match can last up to 3 hours as they only have to win 2 sets. But for men it can take 5 hours if playing 5 sets match but the average is about 3 hours.

In the world of technology everyone wants to use the technology in every field, in every part of today’s life technology is used. So for getting any result before the match completes we need some sort of prediction. And this prediction can be done by Machine Learning. By using the previous sets of data the machine can be trained for making the prediction. A huge set of data must be used for the proper training of machine so that the accuracy of the result increases. Machine is trained on basis of different attributes like winner name, looser name, surfaces, players hand, no. of match won, player’s height and many other factors. A machine is trained with those factors which can improve the machine to predict the current match. The data is divided in 2 set, the sets are the training set and testing set. The maximum data are used to learn the machine. Our main objective is to predict and particular towards the development of predictive models, we will typically use our models to guide many decisions, and to make hundreds, thousands, or even billions of predictions. With a predictive model our principal focus is no longer on the data but on the type of the theory about reality. Few parts of data must be used for the testing purpose so to get a handle on the ability of a predictive model to perform on future data. Although we cannot literally gain access to the future before it occurs so we have to reserve some of our currently available data and treat it as if were data from the future. A machine that will predict the match result can be used in different purpose. Such machines can used for bating, such machine can be used for the team selection, such machine can be used in improvement of the performance of any player.

Prediction can be done on different ways, one way is to predict the match result before the match starts by using the historical data and another way of prediction is to predict the match result during the match that is in-game prediction. In this type of prediction, comparison between the players made.

Not only in the field of tennis, in every field Machine Learning play a important role. Every field requires some prediction so that a future plan can be made on the basis of the result to improve the result.