Methodology and Techniques to be used:

Proposed Methodology:

Let $f$ be a continuous mapping of the closed interval $[-1, 1]$ into itself. Figure suggests that the graph of $f$ must touch or cross the indicated diagonal, or more precisely, that there must exist a point $x_0$ in $[-1,1]$ with the property that $f(x_0) = x_0$.

The proof is easy. We consider the continuous function $F$ defined on $[-1,1]$ by $F(x) = f(x) - x$, and we observe that $F(-1) > 0$ and that $F(1) \leq 0$.

It now follows from the Weierstrass intermediate value theorem that there exists a point $x_0$ in $[-1,1]$ such that $F(x_0) = 0$ or $f(x_0) = x_0$.

It is convenient to describe this phenomenon by means of the following terminology. A topological space $X$ is called a fixed point space if every continuous mapping $f$ of $X$ into itself has a fixed point, in the sense that $f(x_0) = x_0$ for $x_0$ in $X$. The remarks in the above paragraph show that $[-1, 1]$ is a fixed-point space. Furthermore, the closed disc $\{(x, y): x^2 + y^2 \leq 1\}$ in the Euclidean plane $\mathbb{R}^2$ is also a fixed-point space.
The proposed methodology of the work is obviously the technique of functional analysis. More stress will be laid upon the using **Contractions mapping conditions in different ways** of the research papers/thesis/reviews on fixed-point theorem from different Libraries of universities, will be studied in detail to gain knowledge of work done in this field, then by relaxing certain conditions try to improve the results and achieve new results on fixed point.

During this research work we will not only generalize the existing results but also generate some new results by taking various mappings and different spaces finally we will present our work in national/international / conferences and publish it in national and international journals.

In the present study, the objectives are expected to be derived from existing Banach Theorem by following classical mathematics theories. The steps of the research methodologies are:

- Formulation for objective functions.

- Defining the constraints of the objective functions.

- Following the classical techniques of mathematics to prove the ‘fixed point’.

- Exploring the mathematical approach of reaching toward the fixed point of various types of metric spaces by using some rational contractions.

- Applying these theories on the various metric spaces and different mappings.