**PROJECT REPORT**

**Polynomial Solver Report**

**1. Introduction** The Polynomial Solver is a Python-based tool designed to find the roots of a polynomial equation. It allows users to input polynomial coefficients, processes the equation using numerical methods, and returns its roots. This tool is useful for students, educators, and mathematicians.

**2. Features and Functionality**

* **Root Calculation:** Determines the roots of a polynomial equation using numerical methods.
* **User-Friendly Input:** Accepts space-separated polynomial coefficients in descending order of power.
* **Efficient Computation:** Utilizes NumPy's roots() function for accurate and fast computation.

**3. Implementation** The program is implemented in Python using the numpy library:

* The **solve\_polynomial(coefficients)** function computes the roots of the given polynomial using np.roots().
* The **main()** function handles user input and displays the computed roots.

**4. User Interaction**

1. The user is prompted to enter polynomial coefficients in descending order (highest degree first).
2. The program processes the input and computes the polynomial roots.
3. The roots are displayed as the output.

**5. Conclusion** The Polynomial Solver is a simple yet powerful tool for solving polynomial equations. It provides an easy-to-use interface and efficient computation, making it valuable for mathematical problem-solving.

**6. Future Enhancements**

* Extending support for complex coefficients.
* Adding graphical representation of polynomial functions.
* Implementing a GUI for enhanced user experience.

This project demonstrates fundamental programming and numerical computation techniques while providing a practical mathematical tool.