Algorithm for the Algebraic Equation Solver

1. **Start**
2. Display the menu with options:
    1. Solve Linear Equation (ax + b = 0)
    2. Solve Quadratic Equation (ax^2 + bx + c = 0)
    3. Solve System of Linear Equations
    4. Exit
3. Ask the user to enter their choice (1, 2, 3, or 4).
4. If the user chooses **1 (Linear Equation)**:
    - Ask the user to input coefficients aa and bb.
    - Solve the equation ax+b=0$ax+b=0$ using the solve_linear function.
    - Display the solution.
5. If the user chooses **2 (Quadratic Equation)**:
    - Ask the user to input coefficients aa, bb, and cc.
    - Solve the equation ax2+bx+c=0$ax2+bx+c=0$ using the solve_quadratic function.
    - Display the solution(s).
6. If the user chooses **3 (System of Linear Equations)**:
    - Ask the user to input the number of variables/equations.
    - For each equation, ask the user to input the coefficients and the constant term.
    - Solve the system of equations using the solve_system_of_equations function.
    - Display the solution.
7. If the user chooses **4 (Exit)**:
    - Print "Exiting Algebraic Equation Solver. Goodbye!"
    - **Stop**
8. If the user enters an invalid choice:
    - Print "Invalid choice! Please select a valid option."
9. Repeat from step 2 until the user chooses to exit.

Flowchart for the Algebraic Equation Solver