Projectile Motion Calculator

Overview

The Java Projectile Motion Calculator is a user-friendly program that allows users to calculate various cases of projectile motion. This versatile program covers a wide range of scenarios, including:

- Projectile projection at an angle from the ground
- Horizontal projection from a height
- Projection at an angle from a height
- Projection from an inclined surface

By providing the necessary inputs and specifying the desired output, users can quickly obtain accurate results for their specific situations.

Features

1. Projectile Projection at an Angle from the Ground: Users can input values such as initial velocity, launch angle, and gravitational acceleration to calculate the trajectory of a projectile launched from the ground. The program computes parameters like maximum height, range, time of flight, and impact velocity.
2. Horizontal Projection from a Height: In this scenario, users can specify the initial velocity and height from which the projectile is launched. The program calculates the time of flight, horizontal range, and impact velocity.
3. Projection at an Angle from a Height: For projectiles launched at an angle from a certain height, users can input initial velocity, launch angle, and height. The program calculates the maximum height, range, time of flight, and impact velocity.
4. Projection from an Inclined Surface: This feature is particularly useful for cases where the launch surface is inclined. Users can input the angle of inclination, initial velocity, and launch angle to determine the range, time of flight, and impact velocity.

How to Use

1. Run the Java Projectile Motion Calculator program.
2. Choose the specific projectile motion scenario you want to calculate.
3. Enter the required input values when prompted. The program will guide you on the necessary inputs for each case.
4. Specify the desired output you want, such as maximum height, range, time of flight, or impact velocity.
5. The program will perform the calculations based on your inputs and display the requested output.
6. The results will be presented in an easy-to-understand format, providing users with valuable insights into the projectile motion scenario they're interested in.