Angry Birds - Gadar Chidiya

Flow:

1. First, we created a **RandomShootAgent**, which randomly selects an object and the launch point of the bird.
2. We collected data from it like minimum pig distance, weight above it, personal weight etc, feeded it to WEKA (Data mining software), which gave us a linear equation by regressing the data.
3. We used this linear equation in the **GadarChidiyaAgent** to determine the launch point which will give the max score possible among the scores achieved from different angles for a object.
4. As we were not clear about the considerations of the various attributes of the objects, this strategy failed, so we implemented a WeakPoints strategy which targets the weak areas of the structure.

We created the **database** module which consists of two classes which helps us in connecting the code to the database using jdbc, creating the table and database operations like insert.

We created the **regression** module which contains various functions to get the attributes of a particular object.

**RandomShootAgent:**

This class collects data for getting the linear regression equation. The attributes which affected the score majorly were selected, namely: Type, Personal Weight, Above Weight, Minimum Pig Distance, Weakness. The Random agent chooses an object (blocks and pig)from the screen and estimates the various launch points possible to hit the center of the randomly selected object, the final launch point to be used by the bird was also selected randomly. We collected the aforementioned attributes by running the Random agent approximately 100 shots from each level, resulting in a total of approximately 2300 shots.

**GadarChidiyaAgent:**

We then used the linear equation generated by the data mining library-WEKA, in our agent. We iterated all objects present on the screen, for each object all the attributes except angle were calculated. Then we estimate all the launch points available for the bird to hit the center of the selected object, we get the corresponding angles of these launch points. Now we calculate the score by iterating all the values of angles and get scores corresponding to each angle. Now we choose the object, release angle of the entry which has the highest score and launch the bird from this point. As we were not clear about the considerations of the various attributes of the objects, this strategy failed, so we implemented a WeakPoints strategy which targets the weak areas of the structure.

Run flow:

First, the main function of GadarChidiyaAgent will run, then the run function will be executed which loads the current level and calls the solve function which finds out the launch point and launches the bird accordingly till the level is completed(won/failed) then the pointer goes back to the run function which navigates the game to the next level.