

Exercise Monitoring Procedure

For "Curls":

- Calculate the elbow angle formed between the shoulder, elbow, and wrist.
- If the angle exceeds 140 degrees and the current state is None ie. Start State, set the state to "down".
- If the angle is less than 30 degrees, it signifies the starting position of the curl ("up").
- If the angle exceeds 140 degrees and the current state is "up", it indicates the completion of a rep.

For "Squats":

- Calculate the angles at both knees and hips.
- If all knee and hip angles exceed 135 degrees and the current state is None ie. Start State, set the state to "up".
- If all knee and hip angles are less than 135 degrees, it signifies the squatting position ("down").
- If all knee and hip angles exceed 135 degrees and the current state is "down", it indicates standing up from the squat ("up").

For "Press":

- Check the angle formed between the shoulder, elbow, and wrist.
- Compute the distances between the shoulder and elbow, and between the shoulder and wrist.
- If the elbow angle exceeds 130 degrees and the distance between the shoulder and elbow is less than the distance between the shoulder and wrist, it indicates the upward motion of the press ("up").
- If the elbow angle is less than 50 degrees and the distance between the shoulder and elbow is greater than the distance between the shoulder and wrist, and the current state is "up", it indicates the downward motion of the press ("down").
- If the elbow angle is less than 50 degrees and the distance between the shoulder and elbow is greater than the distance between the shoulder and wrist, and the current state is None ie. Initial State, set the state to "down".