**Project proposal**

**Hit Rate of Basketball**

**Professor:**

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**Team Members:**

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**Why is this an interesting topic to you?**

Basketball is one of the most popular sports around the world, and what makes it interesting is shooting because everyone is expecting the positive results when shooting the ball. As shooting is easily affected by the conditions, such as the distances to baskets or being defended, in this project, we would like to examine what factors would influence the shooting rate the most.

**Data collection**

We will go to the field and count our average hit rate to get the data.

**Detailed Information:**

**Response variable:**

Hit rate of five shots

**What factors will be manipulated?**

Site, distance, defender, hand, jump, basket

**What levels are there for each factor?**

* penalty / 3-point
* defense / no defense
* One hand / two hand
* Jump / no jump
* High basket / short basket

**What design will be used?**

* Fractional factorial design
* OFAT

**Why was this design chosen?**  
Two levels (+ and -) for each factor will be used and we are trying to analyze the interaction between different factors.

**How much replication will you have?**

We will use 2 replications in this experiment to insure less bias. For each condition, each person will hit five times and calculate a hit rate and repeat this action again. The average rate of two replication will be used for our responses.

**How will you use randomization (e.g., how to assign the subjects to treatments, and the order of experiments)?**

We will draw lots to decide the level of factors.

**What is a block variable?**

In this experiment, we consider 4 different people as block variable, which provides us a preferred way to view data within a random collection information.