**Edge Proposal: Blue Bikes**

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**Problem**: During certain time windows during the day many Blue Bike customers customers are unable to ride since various bike stands experience high demand and are empty

**Proposed Solution**: Provide Blue Bikes with (1) a list of bike stands that will benefit the most from interventions aimed to both improve customer experience and potentially reduce costs and (2) provide brief explanations of these solutions.

**Methodology**:

1. **Build a predictive analytics model for labeling:** Given the time of day, predict a label for if there are bikes docked at a station (Yes or No)
   1. Outputs: Labels of 0 or 1 (0 if no bikes, 1 if one or more bikes are docked)
2. **Build a predictive analytics model for wait times:** Given that station X at time Y has no bikes, predict how long it will take for a bike to arrive
   1. Outputs: A calculated wait time for every station X
3. **Potential Interventions**: Provide intervention analysis for stations where wait times are significant
   1. Intervention 1: Refill the bike station more often
      1. Increase current infrastructure to restock bike stands at more frequent occurrences
      2. Pros: Satisfies more demand. Cons: High variable cost to restock more often
   2. Intervention 2: Add more capacity to high demand bike stations
      1. Based on wait times, add more bike docks and bikes to high demand stations so that each of these stands can satisfy customer demand
      2. Pros: Solves problem of docks always being full or empty. Cons: High fixed cost of adding new docks
   3. Intervention 3: Incentivize plans for riders to docks bikes at lower demand stations
      1. Subsidize rides for instances where demand is high so that bikers will park bikes at lower demand areas
      2. Pros: Cost of moving bikes not fully on Blue Bike (should reduce cost). Cons: Cost of subsidizing bikes will decrease profit, and we must assume users will want to move their bikes to lower demand areas.

**Appendix:**

**EDA Ideas**

* 1. Top stations by time.
  2. Top riding times.
  3. Top ridings times by place.
  4. Revenue: Member # \*Member
  5. Revenue per month.
  6. What are the top 15 single use stations.
  7. When are the most single uses occurring.
  8. Calculate yearly revenue.