Name of Project: Dynamic Pricing for On-Demand Parking

Abstract:
Study the historical data for utilization of parking facilities, environmental factors and revenue to better understand the drivers for parking demand. Build models for dynamic pricing models to maximize bookings or revenue, validate the accuracy of models in a test environment, develop a simple clean front end/user interface to illustrate results for stakeholders, and evaluate the business case for Implementation. The project should consider a wide range of potential factors including (current inventory, customer type, location of parking facility, traffic, weather, time until reservation start, desired duration, etc.).

Impact:
ParkWhiz has helped thousands of parking facilities sell inventory to millions of customers by moving the experience of shopping for parking from the driver’s seat of a car to a mobile app, a website, and a variety of other purchase channels. While this transition has already made parking better for both customers and operators, we know that the online platform enables so much more, and one of the most promising opportunities is the ability to change prices and inventory to increase conversions and capture additional revenue. We believe this capability will have a near-term financial impact by both optimizing our existing business and providing another compelling feature to convince more operators to work with us. Thinking longer term, this project represents the beginning of a dynamic parking marketplace that will serve individual drivers, fleets, and autonomous vehicles.

BASELINE GOAL
After investigation and incorporation of data sets (e.g., price, utilization rates, capacity, weather, location, etc.) document correlations between variables, to bookings and net revenue. Develop a forecast model for the optimal pricing (revenue and/or bookings) of a segmented customer base.

Expected Deliverable
Validate the pricing model with out of sample testing data. Optimize business rules for the model to maximize profit for the ParkWhiz business. Create simple, clean user interface to illustrate the impact of model drivers and particular use cases. Design pricing experiment(s) that could be feasibly implemented in production for real time validation of the model.
**STRETCH GOALS**

One or more of the following:

- Implement pricing experiments in operational system, collect data and analyze the results.
- Business case presentations for stakeholders

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<tr>
<th>Project Roles</th>
<th>Key Skills and/or Knowledge</th>
<th>Likely Majors</th>
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<tbody>
<tr>
<td>Data Analysis (3 students)</td>
<td>Data analysis, Modeling, data mining and machine learning techniques, data set cleaning and integration.</td>
<td>Data Science, MIDAS, Industrial Operations Engineering, Mathematics, Economics, Statistics</td>
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<td>General Programming (1 or 2 students)</td>
<td>Algorithm implementation, Data base development, User interface. The development will take place in python.</td>
<td>Computer Science, Any</td>
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<tr>
<td>Business Analysis (1 or 2 students)</td>
<td>Business feasibility and analysis. Developing business communication materials. (Must also have general skills in computer program and/or data science, be sure to highlight both skills in your personal statement).</td>
<td>Industrial Operations Engineering, BBA (with computer science or data science minor) Data Science or Computer Science with Business Minor</td>
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**Additional Desired Skills/Knowledge/Experience**

Any of the following Skills, Knowledge or Experience would be valuable to the 2019 team. We don’t expect students to be familiar all or even most of these items, but strong candidates will have familiarity or experience with some of them and a positive attitude to learn what is necessary as the project gets underway. Please highlight your experience with any of the items on this list in your personal statement on the application.

- Strong Python skills
- Experience with Sci-kit learn (or other data science/machine learning packages)
- Experience working on a multidisciplinary team
- Practical experience cleaning, validating and integrating data sources
- Consumer Segmentation
- Business Analysis
- Econometric modeling experience based on real datasets
- Geographically based data formats
- Agile project experience
- Experience with Atlassian’s Jira and Confluence or similar project management tools
Location:
Work will take place primarily on campus with periodic visits to ParkWhiz downtown Chicago office located at: 208 S. Jefferson St. Chicago, IL 6066.

Sponsor Mentor:

Matt Perille, Head of Growth
Matt has spent his last three roles focusing on how data can increase conversion by improving the customer experience. In his current role at ParkWhiz, he is coordinating optimization efforts across platforms and teams. At Groupon, he led a Data Science team focused on product analytics and A/B testing, and while at Avant, he brought a data-driven approach to his management of the Product, Marketing, and Design teams.

Legal Requirements:
Citizenship Requirements:
● This project is open to all students regardless of citizenship status

Intellectual Property / Non-Disclosure Requirements:
● Students will sign an IP/NDA agreement

Internship Information:
● Summer Internships interviews will be provided to all team members in mid November.

Company Information:
ParkWhiz is the leading transactional platform that enables drivers, fleets and connected vehicles to find and book parking. The company offers the largest inventory of parking spaces for drivers to reserve before reaching their destinations, saving both time and money. Working with all major parking operators, it delivers
transactional parking as a value-added service to major brands in sports and entertainment, travel, automotive and navigation. ParkWhiz has built partnerships with brands including Ford, Ticketmaster, Groupon, Madison Square Garden and others. The company operates two consumer-facing brands of its own - ParkWhiz and BestParking - available for Apple, Android and Amazon Alexa. ParkWhiz has parked millions of vehicles and is operational in over 190 cities in North America and expanding rapidly. For more information, visit parkwhiz.com.