**Pigeons Warriors**
IS-607 Final Project Proposal
Team Members: Daina Bouquin, Nabila Hossain, Angus Huang, Sanjiv Kumar

Background:

Pigeon racing is the sport of releasing specially trained racing pigeons [1] which then return to their homes over a carefully measured distance. The time it takes the bird to cover the distance is measured and the bird's rate of travel is calculated and compared with all of the other pigeons in the race to determine which bird returned at the highest speed. Pigeon racing has been taking place for hundreds of years and has notable historical relevance in American history, particularly the use of racing pigeons to deliver messages and spy on enemies during war time.

Our team aims to use a variety of datasets associated with pigeon racing and bird speed and anatomy to better understand and appreciate these birds and their place in American history.

The Data Sources:

The American Racing Pigeon Union database contains rectangular datasets (CSVs) detailing the results of pigeon races from 2010 to 2015 [2]. The data contained in the ARPU database could be used to better understand modern pigeon racing and to compare today's fastest pigeons to pigeons that have been honored for their military service; speed data pertaining to some historically relevant pigeons can be extrapolated from details given on various Wikipedia entries like those found here [3] and here [4]. It would also be worth examining the speed of modern racing pigeons in comparison to other birds and animals in order to appreciate the swiftness for which these birds are trained and bred. In order to make this comparison we would pull data on the speed of other birds typically domesticated for their quickness and usefulness to humans. Bird speed data such as this can be extracted from Wikipedia pages on bird speeds [5]. We could also examine how racing pigeons fair when compared with some of the world's fastest animals using data from similar online sources [6].

Other potentially useful sources of data and tools for understanding pigeon racing include the Pigeon Speed Calculator [7] developed by pigeon breeders Randy and Wanda Enburg. Moreover, we may want to pull data from broader pigeon racing databases to get a more extensive look at pigeons bred for speed and homing around the word; we could do this by taking advantage of data available through the "Racing Pigeon Mall" [8-9]. Beyond speed, pigeons are also bred for their ability to accurately home in on their base locations. This skill is what makes pigeon racing possible. In order to include this aspect of pigeon racing history, we may also make use of work done by researchers on pigeons' magnetosensitivity [10] (directional sense) made available through GigaDB. One final potential angle for us to explore is the idea of mapping some of the above mentioned data illustrate the flight paths of some of these birds to better appreciate the speed and distance these birds can travel.

Some questions we aim to explore include:

1. How fast is the fastest modern racing pigeon compared to the average speed of historically relevant pigeons who have been honored in war time? Compared to the fastest birds over similar distances?
2. What are some similarities among the fastest racing pigeons? What variables contribute to or positively impact the likelihood of becoming a champion pigeon?
3. Can we map the paths taken by historically relevant birds and compare those paths to modern racing pigeons? E.g. paths > 600 miles?
4. Where do pigeons stand on the list with world's fastest animals

Analysis Methodology:

The analyses we will go through will be guided by the data we are able to aggregate. We will complete baseline descriptive statistics and comparisons among the groups discussed above, but we may also be able to employ machine learning to better understand what variables most positively impact a bird's chances at becoming a champion. This may not immediately be possible as the data may be skewed or incomplete. We will iteratively adjust our analysis techniques as we gather data.


[1] https://en.wikipedia.org/wiki/Racing_Homer
[2] http://www.pigeon-ndb.com/ndb.php
[3] https://en.wikipedia.org/wiki/Royal_Blue_%28pigeon%29
[4] https://en.wikipedia.org/wiki/War_pigeon#Decorated_war_pigeons
[5] https://en.wikipedia.org/wiki/List_of_birds_by_flight_speed
[6] https://en.wikipedia.org/wiki/Fastest_animals
[7] http://www.speedpigeon.com/racing_pigeon_calculator.htm
[8] http://www.racingpigeonmall.com/racdata/
[9] http://www.racingpigeonmall.com/
[10] http://gigadb.org/dataset/100007