**Final Project – Proposal**

**Summitting Everest – 100 years of data**

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**Background**

2021 marks the 100-hundred-year anniversary of the first attempt (unsuccessful) to summit Earth’s highest peak – Mount Everest. Another 32 years would pass before Edmund Hillary and Tenzing Norgay conquered the mountain, stepping foot on the summit for the first time.

Since then, more than 10000 expeditions and 78000 mountaineers have attempted the ascent. The success rate has steadily increased over time, but sadly so too has the count of those who have lost their live on the Mountain. To date 306 people have lost their lives attempting the ascent.

Recently there has been reports of overcrowding on the mountain with social media photos of lines ‘crowds’ attempting the summit. This has drawn criticism, over safety on the mountain and potential for increased death rates if not controlled

A group of people climbing a mountain

Description automatically generated with medium confidence

**Image source:** *National Geographic*

**Questions**

* What factors influence summit ascent success?
* What factors influence chance of death?
* Is overcrowding a real issue and does it influence the death rate?

**Data Source**

A database on all expeditions around the Nepal Himalaya between 1905 - 2020 will be sourced from the Himalayan Database, available at: <https://www.himalayandatabase.com/>

**Machine Learning Model**

Several model types will be trialled (decision tress, KNN, deep learning) to determine the optimal model to predict chance of success and risk of death given input features.

**Visualisations**

1. **Text field (see x% and y% below):** Individualised predicted chance of success and risk of death based on the machine learning model
2. **Successful Ascent Rate over time:**

* Line chart of success rate (y-axis) over years (x-axis)
* An indicator will be displayed over the plot to indicate where the current data point displayed

1. **Death Rate over time:** 
   * Line chart of death rate (y-axis) over years (x-axis)
2. **Stacked column bar chart:**  will compare chance of success and risk of death to the average for that gender, the average for that year, the average for that side of the mountain
3. **Scatter plot of death rate vs numbers attempting ascent**: to ascertain the effects of overcrowding

Shape

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**Rough page schematic:** options are selected via dropdown menus on left of page.