**Term Project Proposal**

Natasha Wuthrich & Stu McGorman

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Dan Austin

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**Introduction**

The province of British Columbia (B.C.), Canada, is home to vast lakes and rivers, hosts impressive mountains, and offers an incredibly wide range of outdoor activities. People in B.C. have access to activities such as: mountain biking, trail and road running, hiking, rock climbing, snowboarding, skiing, and cross-country skiing, to name a few. Maintaining a healthy lifestyle has shown to have a positive correlation between physical activity and mental health (Fox, 1999). As a vast majority of British Columbians are active, it is easy to see how important access and availability to these activities are to maintain a healthy and active lifestyle.

Climate change is a known and worrisome phenomenon affecting every part of the globe. As bigger and more historic weather events take place due to climate change, several repercussions and effects have emerged. Events such as wildfires can largely impact air quality (Shankar et al., 2019), as well as general daily life. Increased precipitation and streamflow impacts the accessibility to outdoor activities, not only from impacted roadways, but influencing the quality and stability of rivers and lakes (Bhatti et al., 2021). During the summer months, increased heat waves or “heat domes” have been appearing, breaking record heat temperatures, and having a major impact on human society and ecosystems alike (Jeong et al., 2016). Taking these factors into account, we would like to study the impacts that climate change effects have on athletic individuals in the province of British Columbia.

**Target Audience**

The statistics for the impacts that climate change has on active individuals can not only be used as a reference for medical health care professionals in British Columbia, but it can be used all over the world as these impacts are affecting people worldwide. Governments, companies, and anyone who does activities outside will be able to use this data and see the tangible negative health effects it has on communities. Furthermore, this data could be used to motivate people, companies, and governments to implement systems to curb the negative effects of climate change.

**Inventory**

Initial inventory needed are the following:

* Leaderboard data from strava, we will look at average running times for specific segments overtime and compare to geographic weather data for the segments location
* Spatial data set for the weather, rainfall, precipitation, and air quality of BC to study the changes in weather conditions over multiple years
* Potentially a dataset or information on British Columbian’s mental health over a period of time
* Any other dataset that can be obtained to see the changes in the amount of physical activity done when compared to environmental changes

**Case Study Outline**

* Physical activity data based per month, and per effort, on a spatial data scale
* Air quality, temperature, and rainfall precipitation data layered on top per month to see the comparisons
* Mental health quality aligning with the previous data to compare the environmental changes have on physical and mental health per month

**References**

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