Thank you for showing interest in this project.

Continuous glucose monitors (CGMs) are a recent development in the management of type 1 diabetes (T1D). These devices give glucose readings every 5 to 15 minutes, providing large amounts of data and providing potential for unprecedented insight into glucose dynamics throughout the day.

NICE has recently announced that all people with type 1 diabetes will receive a CGM. This dramatic increase in data will provide opportunity for significant advances in diabetes health research. However, there will be a dramatically increased demand for effective data analysis tools available for non-technical researchers and clinicians.

Currently the platforms on which the data analysis can be performed are proprietary, closed source and limited in terms of functionality. The glucose data can be analysed with some basic metrics but cannot be explored in any more flexible or complex ways. Consequently, researchers are exporting the data and calculating the relevant metrics manually, which is extremely time consuming and prone to error.

The idea of this project began because I was approached to try to solve this problem. The aim is to calculate important metrics of glycaemic control, whilst also providing enough flexibility to meet the individual needs of researchers. This was done to a certain extent in the creation of a Python package called Diametrics. However, implementation still requires some level of technical skill. Thus, we began experimenting with translating Diametrics into a Python webapp using Streamlit.

The webapp can process data from different CGM brands with different sampling intervals, it calculates commonly used metrics of glycaemic control, provides day-by-day breakdowns, and allows you to look at a specific periods of interest. This beta webtool was presented to the diabetes research team at Exeter and received incredibly positive feedback. However, there is so much more functionality that could be included to enable researchers to really get the most out of their data! We intend to improve upon this by running several brainstorming sessions with diabetes researchers, clinicians, people with T1D and programmers in order to provide the most functionality we can, whilst also staying within the time limit we have.

The project that we are proposing is a 4-6 month project that would develop this webtool into a simple yet flexible tool for a non-technical audience. We need funding to cover my expenses as a researcher during this time and some time with software engineers who can guide the development process.