**GP API Activity**

**Group 12**

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1. **What is an API (Application Programming Interface) from software engineering standpoint. Discuss on benefits of that and relate it to different software architectures and design patterns.**

An API in software engineering is often used as a way to obtain data from an outside source to use within your own application. The advantage of using one would be if you are making an application that provides a service to the user that requires access to real time data or a large quantity of data, you can use an API built by someone else to create your application. This allows you to avoid what could be a large undertaking of setting up infrastructure to obtain the necessary data yourself. They are also generally easy to use, which means they can be inserted into whatever your project is without making sweeping changes to the architecture of your program.

1. **Lists the API’s which you have used earlier? Put "none" if none of the team members have used an API before.**

NONE

1. **Explain the process involved in using an API? Find the API(s) fit your application. Have you used tools such as Postman?**

The first thing about working with APIs is finding the one that your application could use to perform certain tasks more efficiently. There most likely are multiple APIs that could be used for one specific reason, so it is very important to do a thorough google search in order to find the best one. Once an API that would satisfy your needs is found, you need to read its documentation very carefully and understand how it works. Once all that is done, the next step is to actually implement the API within your application. One of the first things to do in the implementation process is obtaining an API key that will communicate and send requests to the provider’s server. Yes, I have used Postman once, but I do not remember it very well; I would have to refamiliarize myself with it if I were to use it again.

1. **What factors did you consider while choosing those API for your application?**

We needed an API that would give us access to reliable crime data and we wanted that data to be up to date. This meant that our main two criteria for API was reliability of the source providing the data and how often that data would get updated. Another consideration was cost, we wanted a free API that we could use while the application is under development. Another consideration was what format the API would return the data in. While the data can be manipulated once it is in our server, we preferred an API that would return the data to us as close to our own data structure as possible.

1. **Use the API's directly or using apps such as Postman and show how it works.**

The resource we tested was the UK Police Open Data API. Below is a screenshot of a simple request made to the API endpoint. In order to get this API to work, we had to make an account with Rapid API to obtain an API key that would allow us access to use the endpoint. The endpoint URL then had to be put into Postman in a GET request, along with the headers of our API key and a parameter relating to a specific set of coordinates that would allow the API to return the name of the neighborhood located at the coordinates.