**Week 10 – REST API**

When I researched further into REST, I found an article that goes over what REST API is while explaining this in a beginner’s perspective. As we have learned the Application Programming Interface or API for short is known as a set of rules that determine which format and commands will grant access to the service of an application that will determine the data that is returned. As REST is short for Representational state transfer which is an API that uses HTTP requests to communicate with web services. As seen below we find the main types of actions that a HTTP Request method will characterize that action that we will be taking when referring to the API:

1. GET – Which will retrieve information like search results as this is the most common type of request since we can get the data, we are interested in from what the API is ready to share.
2. PUT – Can change existing information such as changing a value from an existing input.
3. POST – As you might think allows us to add new data to the server which would allow you to add a new item to your inventory.
4. Delete – As you might have thought is used to delete existing information.

Reference: <https://rapidapi.com/blog/how-to-use-an-api-with-python/>

Nice article Everett I like how it went over specific actions and services that an API provides to it user. As we can receive a summary list that shows the tasks that are needed to be done. While also giving us the ability to add new tasks to our to-do list and receive further information on existing tasks and mark them complete. Last but not least this article states that we also can modify existing tasks by changing the description and or task.

Has anyone had an issue with viewing data on a Mac Book in a Markdown file as when I knit my file I get a pop up that is

and then my data frames are shown as a pop up

Table

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**Week 11 – What is a spline**

As stated in our book R for Everyone we learned that a spline is a function that is known as a linear combination of N functions that are known as transformations of the variable x meaning there is one for each unique data point. While a smoothing spline is used to fit a smooth to data that exhibits nonlinear behavior that can even end up making predictions on new data.

In R we can use the function smooth.spline which will return a list of items where x holds the unique values of the data while y is known as the corresponding fitted values with a degree of freedom being used. As seen below we can see an example of this function being used on the diamonds data from our book:

A picture containing text

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As seen below we must first extract the information from the objects and create a data frame from the combined information from our smooth.spline functions by using the plyr package:

Graphical user interface, text, application, email

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Next, we create a plot by using the ggplot function while using fewer degrees of freedom we will receive a straighter fit as a higher DF will lead to more interpolating lines. While seen below we see multiple smoothing splines which shows smoother lines for degrees of freedom that are less:

Chart, scatter chart

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Reference: LANDER, J. A. R. E. D. P. (2021). *R For Everyone*. ADDISON-WESLEY.

**Week 11 – Object-Oriented Programming**

Object-oriented programming is used to design the program by using classes and objects as the object is related to real world entities such as a book, pencil, and or even a house. While this concept is focused on writing reusable code which is a widespread technique that is used to solve a problem by creating objects.

As major principles of the object-oriented programming are as followed Class, Object, Method, Inheritance, Polymorphism, Data Abstraction, and Encapsulation.

* Class - is a collection of objects that is a logical entity that has specific methods and attributes.
* Object – an entity that has state and behavior such as a real-world object like a keyboard, chair, or table.

When defining a class, we need to create an object that allocates the memory as seen below we have created a class named car with two attributes that are modelname and year. That has a c1 object that will allocate the memory for the values:

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Graphical user interface, text

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Reference: <https://www.javatpoint.com/python-oops-concepts>