e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
Volume:03/Issue:06/June-2021 Impact Factor- 5.354 www.irjmets.com

NASA API USING PYTHON

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ABSTRACT

NASA API application provides user with some very useful features like information about asteroids passing earth, about Space and NASA's public projects, Space colorization and planetary weight calculator. This app can be used for informational purpose or even by people interested in space and science.

Keywords : Real Time Asteroid Monitoring System, NASA- Public Picture Repository, Planetary Weight Calculator, NASA- Picture of The Day, Useful Link for R&D, Space Image Colorization.

I. INTRODUCTION

The Space App is a desktop application for Research and Development purpose the features consist in this application can be used for many purpose from information collection to daily monitoring. This application is based on API's and requires internet connection to be used since real time data gets fetched from various sources like NASA open source platforms. This is totally a new concept for desktop application using various NASA and Algorithmic API's. This Python based desktop application has an attractive and user friendly GUI. It does not require any special training or knowledge to use this app. This app can be used for informational purpose or even by people interested in space and science.

II. METHODOLOGY

This system is to design a new system for those want to learn and research about space. They will get an information to about the space and images of the earth which taken by space station's daily. We develop this API likewise to gather all the possible platform which are available on Google to gather here so that no one have to surf pages on internet browser to study or to research. We have use python to develop this API at backend and Tkinter based window to feature window of our app. Our 'Real Time Asteroid Monitoring System' uses json to gather information. uses urllib to request for information of asteroid via API.

III. MODELING AND ANALYSIS

The Space App consists of total 6 features starting from the main GUI of program which is main panel of Space App.

Start:

It has a Tkinter based Window which leads to the specific feature window of the app. It has 6 buttons with customized buttons designed in Adobe Illustrator and a background image for the window. It uses commands that lead to specific feature window for click event of button. Every window also consist of menu bar with option and home and exit as submenu of it, home is used for going to features window and exit to terminate the application.

Real Time Asteroid Monitoring System:

This Feature allow users to monitor the asteroids which has or will be passed near earth in real time or using a specific date, it show the name and description of asteroids and also tells if it is dangerous. It uses json library to gather information, urllib to request information via API. It takes an input as date in 'dd-mm-yyyy' format and request to NASA source and creates the json file in local source directory then shows in text box of application.

NASA- Public Picture Repository:

The public picture repository feature in this application downloads the pictures which are available for the day in NASA's public picture library. It gets updated every day and users can access directly using this application it also gives the link for the picture.

Planetary Weight Calculator:

This features is used for calculating the weight of user respect to other planets in our system. It takes an input as your weight in earth in kilo grams then converts it into the respective weight of different planets using the force of gravity. Then returns your weight respect to all other planets.

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NASA- Picture of The Day:

The Picture of the day feature fetches the picture of the from NASA's open source library it can also shows if it is a video of the day. It also retrieve information about the picture like author and the photographer. It also downloads the image or video in the current source directory.

Useful Links for R&D:

This feature consists with the links to some useful websites where user can access some useful information or research and development purposes.

Space image colorization:

This is the most fun feature of this application it takes an input as black and white picture URL and returns the coloured image in own Algorithmic account's Directory.It uses an open source API of Algorithmia.com where we have to provide custom API for usage of this application. The Algorithmic has an inbuilt open source algorithm which converts the B&W images to coloured images, here I have directly use that algorithm using their open source API.

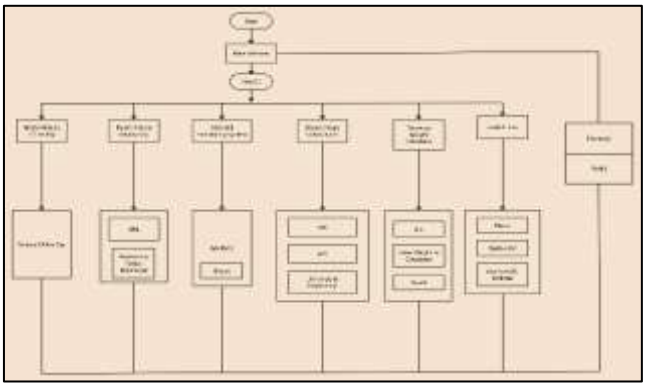

Figure 1: Block Diagram.

IV. RESULTS AND DISCUSSION

1. Information given by Real Asteroid Monitoring System :

Figure 1 : Select the option for Asteroid Monitoring

Figure 2 : Enter Date

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Figure 3 : Shows result for asteroid passing by the Earth.

2. NASA- Public Picture Repository give you images provided by NASA:

Figure 4 : Click on Download images will download in API generated folder.

Figure 5 : Go to Download Folder will take you to default image folder.

Figure 6 : Downloaded Images.

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3. Planetary Weight Calculator :

Figure 7 : Enter the Weight.

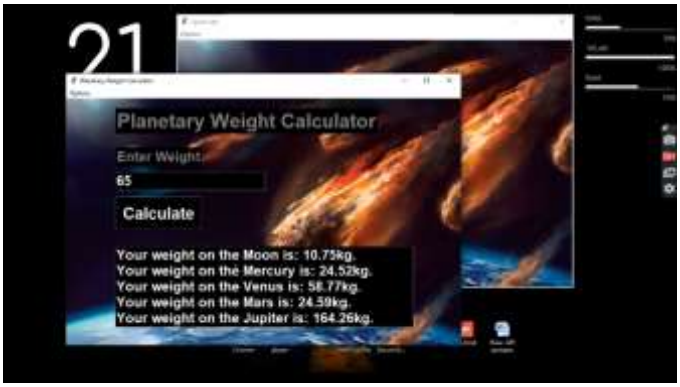

Figure 8 : Caculated Result.

V. CONCLUSION

This application is completely based on API's and requires internet connection to run, it has unique and simple GUI with customized graphic work. This is application can actually be used by the students for R&D and also for fun. I see this application as a success for a useful python application, this app can save users time to visit multiple websites to gather the information this application is providing.

This is application is completely tested and successfully completed within the time allotted and it fulfills the entire objective of it.

VI. REFERENCES

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