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Graphical User Interface for Shuffling of Sections based on Student Profile

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Abstract: ***This project GUI for shuffling of sections is done to automate the hectic work of shuffling students into sections has been programed in python using open source module using pandas and tkinter the overall result achieved to this program is that students got shuffled into sections with same ratio of male and female in all section, and average of ranks of students of all sections are similar as to maintain equality and integrity. This program gives a GUI for the administrator to access the file with data of students stored to manipulate that data. In this project we will implement using python programming language .in python, we will use module pandas, TKinter. Pandas to manipulate data of students from an excel file through python program, TKinter is used to add GUI to the program to select the file to be manipulated pandas is a software library written for the python language for data manipulation and analysis. In particular, it offers data structures and operations for manipulating numerical tables and time series In particular, it offers data structures and operations for manipulating numerical tables and time series. TKINTER is a software library for creating library for creating GUI using python language.***

Keywords: GUI, Python, Pandas, T1kinter.

I. INTRODUCTION

Now a days we all come across the basic problem shuffling of sections. So to overcome this problem we can use a code in python idle and shuffle easy by running it in a anaconda software. Shuffling the students to different sections has been practised in many schools colleges and for many reasons. Shuffling is a process used to randomize a set of students to be equally divided in a section with equal number of men and women or boys and girls. And the shuffle list also contains the detail information of a student and in which branch are they bearing along with their roll numbers. And in another place enrolment numbers are assigned on the names arranged in a alphabetical order or in a sequential order. In some residential schools they do shuffle students from one section to that of another section by doing the bellow steps they do login with their principal credentials and select their academics on the top bar of the dashboard and they enrolments selection process to choose the student shuffling. They select class and sections according to the students list. Select students by clicking the checkbox and selection of an section to change it and then it will be updated successfully. shuffling is performed in place meaning that the list which contains the detailed information of a students can be provided as an argument to that of a function.

The shuffle() method does also takes a sequential procedure such a list string tupule and also change the way in which something can be organised. there are many ways in which they would appoint a deck of people and give a list of data set and ask them to shuffle. This is all a time taking process. It is better to go with a smart way where it is not too time consuming. The process we make will be at least of 10-15 min and the code we do run in our python IDLE or ANACONDA software shuffles the selected dataset and then we see the folders with the separated branch along with their alphabetical names and the enrolled roll numbers that to in a sequential order. while across the advantage of this it is no more time taking and we observe that the student may be from management or he /she may from reambrasement it will equally divide them based on the number and each section will be divided with equal number of students with all sections. It is easy process it is also readable. In this project there would be a dataset of the updated one and the code which could easily shuffled by the graphical user interface which has been offered by python which also contains multiple options for developing it. In all of these tkinter I mostly used.

II. OBJECTIVE

One of our team witness a school head had arranged a team of members for each specialised branch. The main purpose of arranging the team is for every starting of an academic year this team will shuffle the students in data set in a capitalised order with equal ratio of male and female along with the management, reambrassement, based on their profile but this process takes the time of nearly 10 days. This became a predominant reason for us to lead this project. We met them to know the data set management system in the college. As it is completely paper and file based faculty are supposed to shuffle those in a particular manner.

In the first place they got tired and strained due to the ordering of data set and maintaining properly for each branch is leading the

problem to the next level. It may be a rare case but many have savoured it in an easy way. We even saw the faculty and the team members are separating the data sets of each branch and working on it for hours calculating the average members and arranging the shuffled members based on the profile of the students. So here we are using the python module to shuffle the students in a orderly process in a given ratio from the data set and moreover this is not at all a time taking process.

III. LITERATURE SURVEY

Graphical UIs (GUIs) are well known for PCs nowa-days. Once in a while will you discover a program that doesn't have a type of graphical interface to utilize it. Most non- graphical projects will be found in *nix working frameworks; and still, after all that, those projects are typically more established ones where the software engineer didn't need (or see the needfor) a graphical interface.Unless you are a force client or feel entirely great utilizing order line instruments, you will connect with your PC by means of a graphical between face. A graphical interface involves the program making what is usually called a "window". This window is populated by "gadgets", the fundamental structure squares of a GUI. Gadgets are the bits of a GUI that make it usable, for example the nearby catch, menu things, sliders, scrollbars,etc. Essentially, anything the client can see is a widget.Because a great many people are accustomed to utilizing windows to control their PC, it's beneficial to realize how to make a GUI. In spite of the fact that it's simpler and regularly quicker to make an order line program, not many individuals will utilize it. People are visual animals and individuals like "gaudy" things. Consequently, putting a pleasant graphical interface on your program makes it simpler for individuals to utilize, regardless of whether it's quicker/simpler to utilize the order line.

IV. PROPOSED SYSTEM ARCHITECTURE

Data is stored in different formats(excel file html file etc) and we transform the stored data into single format and store it somewhere that’s where Data Warehouse comes into picture.

Once we have stored the data we can perform certain analysis(predictive modelling, join or merge data,etc)on it.Once the analysis is done we can plot in the form of graph or any other forms which Swe can understand. This process is known as Data Visualisation.

A. *What is Data Science?*

Data science, known as Data driven science makes use of scientific methods,processes,algorithms and systems to extract knowledge or insights with the goal to discover hidden patterns from the raw data.

B. *Need of Data Science*

1) To handle and analyse extremely large datasets/data flow.
2) Faster & better Decision making.
3) No Predictions.
4) Reduce Production Cost.
5) Gain business insights.
6) Build Intelligence & ability in machines.

C. *Python for Data Science*

It is simple and easy to learn because it is very powerful language and closely resembles English language and we don’t have to deal with complex syntaxes like in java or any other programming language. Fit for many platforms like windows macintosh solaris etc because python allows you to perform cross language operations seamlessly. It is High level and interpreted language and one does not need to bother about low level and we can simply write in English then python will in turn convert it into ETS.

D. Data Manipulation

Using Data Manipulation, you can extract, filter, and transform your data quickly and efficiently. The Libraries used for Data Manipulation are: NumPy and Pandas.

NumPy is a code library for scientific computing and it contains array objects and also provides for integrating C, C++, etc. NumPy array is a powerful n-dimensional array object in the form of rows and columns, so we can initialise NumPy array from nested Python list and access its elements.

To install NumPy go to Command Prompt and type “conda install numpy” or “pip install numpy” and then go to any IDE and type import numpy and now you are ready to work with Numpy.

Pandas is built on top of NumPy.It is used for data manipulation and analysis and also well suited for different types of data such as tabular data, matrix data, statistical data etc.To install Pandas go to Command Prompt and type “conda install pandas” or “pip install pandas” and then go to any IDE and type import Pandas to work with its libraries.

Python is an open source and we can download by typing python.org in the web browser and from there we can download the latest version of python for windows. IDLE is Python’s Integrated Development and Learning Environment. The python installer for windows contains the IDLE by default. It has two main windows Shell window and Editor window .Shell window is not preferable for multi lines programs in this shell. To code the multi lines programs go to file and click on new file, a editor window will open and there you can code and save and run the code to get the output. To see the output you will be redirected to the shell window there you can see the output for the code.

E. Data Analysis

The process of organising and synthesising data in order to answer research questions and test hypotheses is known as analysis. The term "analysis" refers to a method of organising data in order to answer research questions and test hypotheses. It is the practise of breaking down a complex topic into smaller chunks in order to better comprehend it. transforming raw data into actionable knowledge Even the most data of the highest quality is useless if it isn't adequately analysed, or if it isn't analysed at all. The first step in data analysis is to figure out what kind of data you have [nominal, ordinal, interval, ratio]. Determine what has to be talked about in order to complete the storey.

F. Data Analysis using Python

Pandas is a data manipulation and analysis software package created in the Python programming language. When compared to other Python processes, it has a rather good performance rate. Pandas is based on the Numpy, Scipy, and Matplotlib libraries. Matplotlib is a data visualisation library for Python that we use. Numpy is a crucial Python tool for scientific computing. It includes sophisticated n-dimensional array objects and tools for integrating with C and C++, and is particularly useful for doing linear algebra, the Fourier transform, and random number capabilities, among other things. Scipy is a programming language for scientific and technical computers.

In Pandas, a data frame is the most important object. It's a format for displaying data in rows and columns (tabular or excel spreadsheet like data). Mutable size, labelled axes, different column types, and arithmetic operations on rows and columns are all features of Data Frame.

To create a Data Frame: pd.dataframe(data)

G. Why Python?

It has a simple syntax which can be easily correlated with the English language. The main advantage is that it allows developers to complete a simple program with fewer lines when compared with other programming languages. It mostly runs or executes interpreting system, meaning is that the code can be executed as soon as it is written which could be said that its prototyping can be very quick and easy. It could be treated in a sequential or relating to an established way and also object-oriented way.

Python syntax compared to other programming languages:

It was designed with some identical to that of a English language influenced from mathematics which could be flexible to read as well as to understand. It uses a new tab line to finish a particular program command as opposed to other it often uses semicolon (;). It relies on indentation and uses whitespaces define scope such as functions and classes often use curly braces for its own purpose.

H. What is Pandas?

Pandas derives their name from the word Panel data. P data is a type of multi-dimensional data that includes measurements taken over time. Wes McKinney created Pandas in 2015.

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I. Features of pandas

1) Series object and dataframe

a) Data alignment
b) Slicing,indexing,subseting.
c) Handling of missing data.
d) Group by functionality.
e) Merging and Joining.
f) Hierarchical labelling of axes.
g) Reshaping.
h) Robust Input Output tool.
i) Time series-specific functionality.

2) Pandas Operations Are

a) Slicing the Data Frame.
b) Changing the index.
c) Data conversion.
d) Joining and Merging.
e) Concatenation.
f) Changing the column headers

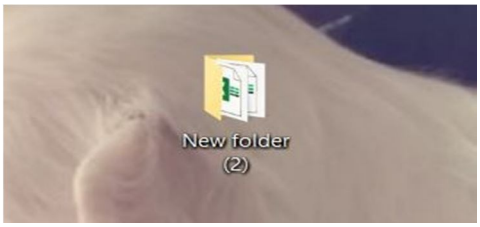
J. Graphical User Interface

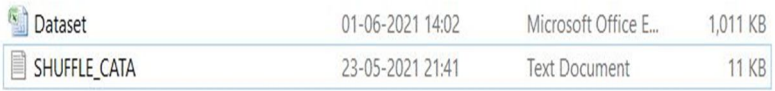
The graphical user interface (GUI) allows the user to interact with the system visually. Both hardware and software can be used to create a graphical user interface. The software is interpreted by the user through the use of a graphical user interface (GUI). The GUI typically consumes more resources than the CLI. With the advancement of technology, programmers and designers are able to create more complex GUI designs that are more efficient, accurate, and quick. GUI design is difficult since the user must feel at ease and have a simple way to interact with the product.

A graphical user interface (GUI) is a combination of components that allows you to interact with software or hardware. Every graphical component offers a means of interacting with the system.

V. EXPERIMENTAL SETUP

1) Step 1





The data set and the code for shuffling of sections.

Create a folder and keep both the dataset and the code in the same folder.The shuffle section is the code and data is the number of batches along with the branches.

2) Step 2

Edit the code in the python module and run it then you will get the option tk for selecting The file

```
File  Edit  Format  Run  Options  Window  Help
import pandas as pd

from tkinter import *
from tkinter import filedialog
root = Tk()


def shuffle(df,ns,sht):
    sname=list(df['sname'])
    gender=list(df['gender'])
    rank=list(df['rank'])

    rank_gender={}
    rank_name={}

    nos=len(rank)
```

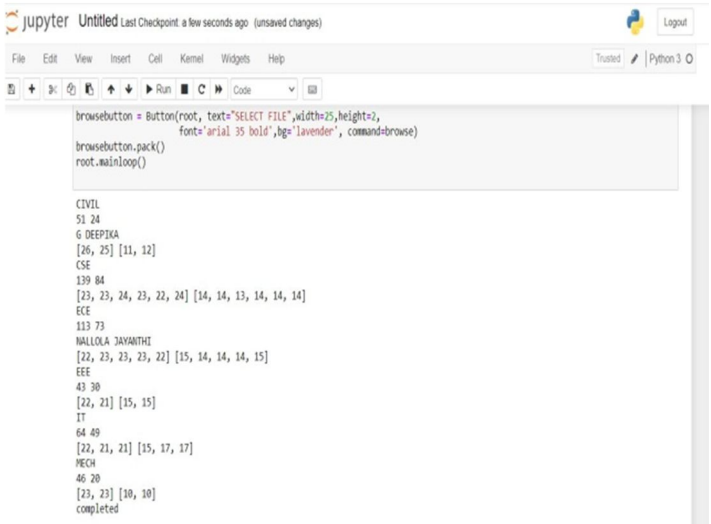
Run the code in the python 3

VI. EXPERIMENTAL RESULTS

1) Step 1

After the program completes it's execution the above window appears.
This window appears due to the TKINTER module. Here we have to select the data set which we have seen in the step1.

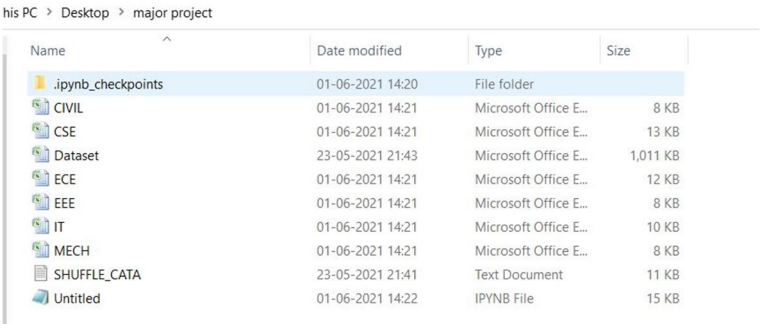
2) Step 2



Output after running the selected file of the data set.

After the execution the output appears in the command prompt with equal number of rows and columns.

3) STEP 3



This folder appears in the step1 window.
The initially created folder consists of all the separated branches and shuffling ofthe students along with there sections with the equal ratio.

VII. CONCLUSION AND FUTURE SCOPE

In this project we have implemented python programmi language , in python we have used modules pandas and Tkinter. Tkinter add's GUI to select the file to manipulate to the program in which GUI (interface) playing vital role. Tinter in phyton GUI programming is standard python GUI library which gives us a object oriented interface to the to GUI tool kit to select the file to manipulate the program. Pandas is a software library which is a rich data structures and functions return for the python programming language to make working with structured data fast, easy and expessive. Which is flexible data manipulation capabilities and enabling sprees sheets and relational data bases Emphasising sophisticated indexing functionality Formation of sections in Raquel ratio is maintained in all sectionals. Once the list of input details is uploaded , the shuffling of students in to the sections maintains give constraints by the user. User friendly interface making the job easier flexible, fast and expressive, with better programmings Through this program and the modules will nvolment the overal result is achieved in which equal ratio of gender in all the sections maintains equality and integrity. Enabling the administration to access the file with the data of students store to manipulate the data in which program gives.

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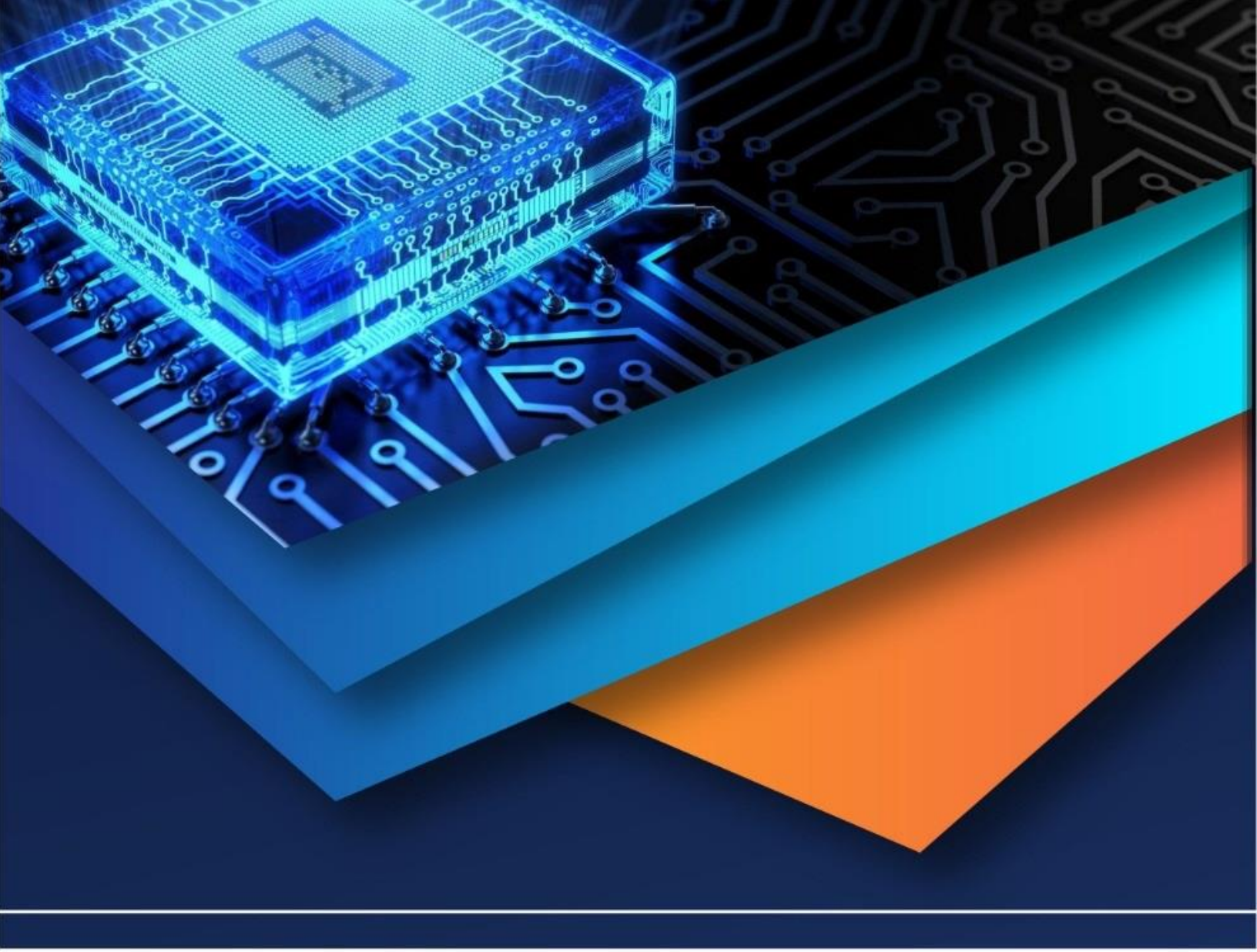

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