INFORMATICS PRACTICES

PROJECT FILE

Teachers Name : Ms. Reeba Mariam Ninan

Students Name : Gaurav Rayat

Class : XII-SCIENCE

Project Name : The Analyser

TOPIC :- Analysis of crimes in India

CERTIFICATE

This is to certify that **Gaurav Rayat** of class **XII - Science** has successfully completed the project on **Crime and Murders** in India under the guidance of **Ms. Reeba Mariam Ninan** for the session 2021-2022.

Ms. Reeba Mariam Ninan
(PGT)

ACKNOWLEDGEMENT

It gives me immense pleasure in expressing a deep sense of gratitude to our helpful and respected teacher
Ms. Reeba Mariam Ninan,
for her guidance throughout the preparation of the project.

We are also thankful to all our teachers who helped us with their valuable suggestions.

Gaurav Rayat
XII - Science

PROJECT - SYNOPSIS

TITLE :- *The Analyser*

By,

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Problem Definition:

Today we are continuously hearing about growth in Crime rates and the number of murders executed day by day.It is very unfortunate that we are living in the country known as the hub of criminals. About 3.5 lakhs crimes have been committed in just 12 years from 2001 to 2012. This is the most in any country ever recorded. So in order to decrease this awful rate of crime we need to analyse it from the core and this project "The Analyser '' helps us to do that.

Features :

1. Analyse different Criminal activities done in different States in particular Year.
2. Analyse murders done in various states in different Years.
3. Visualisation of criminal activities.
4. Visualisation of Murders in India.

Objective :

This software project is developed to review the number of Crimes and Murders that have been done from 2001 - 2012 in India.

The purpose of the project is to develop a program which provides a Command Line Friendly Interface for the user to review the number of Crimes in India.

The user can not make changes to the program since it is released under GNU GPL License.

Hardware Requirements :

A Computer or Laptop with

- **Windows 7 or Above / Linux / Mac**
- **CPU : Intel Celeron N3060 or above**
- **RAM : 4 GB**
- **ROM : Minimum 10 GB**

Software Requirements :

- **Python 3.8.x or higher version**
- **Spreadsheets or Excel Installed.**
- **Matplotlib should be installed.**
- **Pandas should be installed.**
- **Rich should be installed.**

Limitations :

- It is not a web based project.
- More functionality can be added as per requirement.
- No provision to print hard copies.
- It does not visually interact with users as GUI.

References :

- kaggle.com.
- Python Documentation.
- Rich Documentation.
- Google.com
- NCERT textbooks

THEORETICAL BACKGROUND

- ## PYTHON - Language Used

Python is an interpreted, high-level and general-purpose programming language. Python's design philosophy emphasizes code readability with its notable use of significant whitespace. Its language constructs and Object-Oriented approach aim to help programmers write clear and logical code for small and large-scale projects.
Python is dynamically typed and garbage-collected. It supports multiple programming paradigms, including structured, object-oriented, and functional programming.
Python is often described as a "batteries included" language due to its comprehensive standard library. Python was created in the late **1980s**, and first released in **1991**, by **Guido Van Rossum** as a successor to the ABC programming language.

- ## PANDAS

In computer programming, **pandas** is a software library written for the Python programming language for data manipulation and analysis.
In particular, it offers data structures and operations for manipulating numerical tables and time series. It is free software released under the three-clause BSD license.

- ## MATPLOTLIB

Matplotlib is a plotting library for the Python programming language and its

numerical mathematics extension **NumPy**. It provides an object-oriented API for embedding plots into applications using general-purpose GUI toolkits.
Matplotlib was originally written by John D. Hunter.

• PYPLOT(matplotlib.pyplot)

Matplotlib.pyplot is a collection of functions that make matplotlib work like MATLAB. Each pyplot function makes some change to a figure : e.g., creates a figure, creates a plotting area in a figure, plots some lines in a plotting area, decorates the plot with labels, etc.In matplotlib.pyplot various states are preserved across function calls, so that it keeps track of things like the current figure and plotting area, and the plotting functions are directed to the current axes.

• CSV FILES

The csv module gives the Python programmer the ability to parse CSV (Comma Separated Values) files. A CSV file is a human readable text file where each line has a number of fields, separated by commas or some other delimiter. The csv module will be able to read the vast majority of CSV.

TOOLS USED

- **Linux Ubuntu LTS 20.04 as the operating system.**
- **Python 3.8.10**
- **Pandas 1.2.3**
- **Matplotlib 3.4.1**
- **Rich (Console Designer)**
- **VS Code for coding**
- **WPS Spreadsheets**