Sunraj Sharma - Projects

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SOFTWARE DEVELOPMENT

Weather app **May 2022**

https://github.com/Sunraj751/Weather_app **JavaScript, JSON**

- Used **JavaScript** to consume an **API** to retrieve the latest weather data in **JSON** format for **parsing** and **extracting relevant information**.
- Integrated **geolocation technology** to automatically **detect the user's location**, providing a better user experience.
- Devised a **clickable** degree symbol to toggle between Celsius and Fahrenheit temperature formats, to personalize the displayed information.
- Link to **live website** => ***https://sunraj751.github.io/Weather_app/***

Transport Management System **Oct 2021 - Dec 2021**

https://vimeo.com/745878235 **C#, .NET Framework, XUnit, WPF, MySQL, XAML, SCRUM**

- **Assessed**, **researched**, and **analyzed business** and **system requirements** to design and develop Transport Management System using **C#(.Net) with SCRUM and Agile methodologies** and handling **database** using **MySql**.
- Designed and documented the system design using **Class Diagram**, **Sequence diagram**, **Use Case diagram** and **Schema diagrams**.
- Backend was **programmed using C#,** and conducted **unit testing in XUnit** following **test-driven development (TDD) methodology**.

Notepad **Oct 2021**

https://github.com/Sunraj751/Notepad **C#, XAML, WPF**

- Developed a standalone **text editor** using **WPF** and **C#** (**.NET MVC**), **replicating** the features of **Microsoft's Notepad**.
- Implemented the backend functionality to **support reading**, **writing**, and **saving text files** with **input validation**.
- Included a **live character counter** in the UI that updates **in real time** as characters are added or removed.
- Allowed users to **open and modify existing text files**, **create new files**, and **save files at desired locations** on their computer.
- Implemented an exit prompt to remind users to save any unsaved changes before closing the program.

Pizza Shop **Oct 2021**

https://github.com/Sunraj751/SET_pizza_shop **C#, ASP.NET, JSON, jQuery, AJAX**

- Developed a fully functional **ASP.NET** web application for a mock pizza store, featuring a custom pizza topping feature with **JSON**, **jQuery**, and **AJAX integration**.
- Implemented a live pizza topping price calculator using **jQuery and AJAX**, allowing for **dynamic price updates** upon user selection and deselection.
- Designed and implemented a user-friendly interface with name prompt and **real-time error checking**, utilizing **Regular Expression Validator** and **Required Field Validator** for input validation and data accuracy.
- Collaborated effectively with team members to ensure successful project completion, utilizing **Visual Studio** and support for **C#** and **ASP.NET** to develop the project.

Windows Service TCP/IP HiLo Guessing Game **Dec 2021**

https://github.com/Sunraj751/A07-Game-as-a-service **C#, XAML, Azure, WPF**

- Developed a **multi-threaded C# server as a Windows Service**, using **TCP/IP protocol**, to **host** a **WPF guessing game** application **on Microsoft Azure Virtual Machine**.
- Implemented a **backend system** to **enable communication** between **multiple clients and 1 remote server** using **TCP/IP protocol**.
- Developed a **responsive user Interface** allowing users to connect to the server by entering name, port number, and IP address.
- Built the application with **WPF, C#, Azure VM, and Windows services** to ensure **high performance and stability**.
- Configured **port number** and **installation of server** using **Visual Studio** and **Command line**.

DATA ANALYSIS

Covid 19 Global Impact Analysis **Dec 2022**

https://bit.ly/Covid19_Impact_Analysis **SQL Server, T-SQL, SQL, MS Excel, Tableau**

- Performed **analysis** for **big data** of about **150+ countries**, covering **cases**, **deaths**, and **infection rates** of **covid-19** from 2019 to 2022..
- This massive data is **examined and summarized** using functions like **CTE's**, **Temp Table** & **Window functions** within **SQL Server**.
- This organized and summarized data is then exported to an excel file, for further use to create visualizations using Tableau
- This **visualization** highlights various numbers and percentages across the world, **using world map**, and **various bar and line graphs,** to provide information about **global impact of Covid-19 in an accessible and summarized manner**

Data cleaning - Housing Data **Dec 2022**

Housing dataset - Data Cleaning .sql **SQLServer, MS Excel**

- Conducted **data cleaning** on a **housing dataset** for Nashville's housing project, where **scenario for this project was to clean the data for future use**.
- Utilized a range of functions, including **ISNULL(), JOIN, SUBSTRING, PARSENAME**, and **CASE statement**, to effectively clean and manipulate the dataset.
- Implemented **Common Table Expressions (CTE)** to create temporary named result sets that allowed for easier manipulation of the data.
- Partitioned the dataset using the **PARTITION BY function**, allowing for the data to be grouped and analyzed based on specific criteria.
- Successfully cleaned the housing dataset, ensuring that the data was ready for future use in the Nashville project

Data Creation - Amazon **Dec 2022**

Data Creation - Amazon Web Scraping **Python, Jupyter Notebooks, MS Excel**

- Developed a **robust and reliable dataset that provides valuable insights into the price fluctuations of a single product over time, allowing for informed decision-making and strategic planning**.
- Created a **dataset to track the fluctuation in price of a single product over time**, using **python's library** and **utilizing web scraping techniques**.
- Incorporated the **time and date-time libraries** to **automate the process of running the script on a daily basis**, ensuring that the **dataset remains up-to-date and accurate**
- Created a script to store the retrieved data, including the Name, Price, and Date that the script ran, into an excel file for further analysis.
- Utilized the **Excel and pandas libraries** to store and **manipulate the data in a convenient and user-friendly format**.

FINANCIAL ANALYSIS

Movies Revenue Analysis **Oct 2022**

https://bit.ly/Movies_Revenue_Analysis **Python, Seaborn, Pandas, NumPy, Matplotlib, Jupyter Notebooks**

- Conducted an in-depth analysis of **big data** of **7000 movies** from **year 1980 to 2016** to **identify factors impacting gross revenue**.
- Using **Python's NumPy & Pandas library** performed **data cleaning, modification and quantitative analysis**.
- Using **Python's Seaborn & Matplotlib library** to create **visualizations** like **scatter and regression plots** for **testing hypotheses**.
- Examined the data to provide an organized **report** providing **detailed insights** about the **factors affecting revenue for movies**.

Financial Analysis and Risk Management **Nov 2022 - Dec 2022**

https://bit.ly/Financial_Analysis_and_Risk_Management **Python, Numpy, Pandas, Jupyter Notebooks**

- Automated python program to provide comprehensive **quantitative stock analysis**, **risk assessments**, and **future stock price prediction**.
- Uses python to **extract** and **explore the data** and to generate **line and candlestick charts** for **analysis**, between set of multiple companies.
- Utilized **risk management techniques** like, **percent change calculations**, **standard deviation measurement**, and **year-over-year standard deviation** analysis to **predict companies to avoid**.
- Created **visualizations** like **Simple Moving Average**, **Golden Cross**, and **Bollinger Band Plots** to **evaluate investment opportunities** based on **volatility and market calmness**.

Airbnb visualization **Dec 2022**

https://tabsoft.co/3G0WU9Q **Tableau, MS Excel**

- Analysis **providing insights** regarding the **best locality in Toronto for buying a property** for an **AirBnb Rental in Toronto**.
- Used various **visualizations** and **analytical techniques** to identify **correlations between different variables** like the **type of property to purchase** and the **best time to rent** in order to **provide insights** that can be used **to maximize the profits in short term rental industry.**
- Utilized a range of visualizations, including **scatter plots, heat maps, and line graphs**, to effectively **analyze the relationship between different variables** and the **profitability of different localities**

CYBER SECURITY

Intrusion and Enumeration Lab Report - 2 **March 2022**

https://sunraj751.github.io/Sunraj_Portfolio/Files/lab2.pdf **Kali Linux, NMap, enum4linux , Metasploitable3, VirtualBox**

- 3 projects targeting **intrusion detection & prevention using Suricate** and **Enumeration using nMap & enum4linux**.
- **NMap** was used enumerate the system information, and to retrieve IP address of **Metasploitable3 machine.**
- **enum4linux** tool was used to extract valuable information from **Metasploitable3 machine** for using it to conduct exploits on the machine.
- **Analyzed the difference** in the information received by **NMap and enum4linux**, to choose a tool that's better for finding vulnerabilities.

Password and Network Exploit Lab Report - 3 **April 2022**

https://sunraj751.github.io/Sunraj_Portfolio/Files/lab3.pdf **Kali Linux, Legion,Metasploitable3, Metasploitable2, VirtualBox**

- 3 projects targeting **password cracking using John tool, SecList, wordlister,** and **network penetration testing** using **Legion**.
- **SecList** tool creates a customized list of passwords, to be used by **Wordlist tool** to modify and use the passwords to conduct attacks.
- **John tool** an **offline password hash cracking tool** is **used to find passwords** to a **Metasploitable2 Virtual machine**.
- **Legion** a **network Penetration testing tool** is used in conjunction **with Metasploit Console** to **search for possible attacks** on a **Metasploitable3 virtual machine** .
- After analyzing the finding, **configured and attacked** a **vulnerable area** in the **Metasploitable3 virtual machine**.

Penetration Test Report - 3 in 1 report **April 2022**

https://bit.ly/PenTestReport **Kali Linux, Python, VirtualBox**

- The report provides info about **vulnerabilities** identified **for three systems hosted on a virtual box**, including a **news service's main server**, a **Linux-based computer**, and a **WordPress site**.
- Using various tools like **greenbone vulnerability scanners, searchsploit, meterpreter, network sniffers** and even using **password cracking tools** to research and exploit the vulnerabilities to gain access to the system files.
- The **report explains all the exploits and recommended actions steps** necessary **to make the systems safe**.