31/03/2023 01:54:06

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#Importing Required Libraries
import streamlit as slt
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import random
from PIL import Image

#Setting Page Configuration
icon = Image.open("pageicon.png")
slt.set_page_config(page_title = "Laptops - EDA",page_icon=icon,layout="wide")

#Designing SideBar
names = ['21A21A6162 - V.Purna Praneeth','21A21A6138 - m.ankanmma
rao','21A21A6135 - V.Dinesh','21A21A6141- N.murali','21A21A6129- k.reshi
charan','21A21A6124- K.Gopi','21A21A6130- K.Jahnavi','21A21A6161 - V.Divyanjali']
slt.sidebar.title("Project Team Members")
for i in names:
    slt.sidebar.write(i)
slt.sidebar.title("Under the Guidence of - ")
slt.sidebar.write(" Dr. B Rama Krishna")

#Designing Main Page
icon1 = Image.open("logo.png")
slt.image(icon1,use_column_width = True)
slt.title("Exploratory Data Analysis On Laptops DataSet")
uploaded_file = slt.file_uploader("Upload a Laptops Dataset (.csv)")
if uploaded_file is not None:
    data = pd.read_csv(uploaded_file)
    slt.write("Preview : ")
    slt.dataframe(data)
    data.fillna(0,inplace = True) #filling NULL values with 0
    slt.title("Laptops Specifications DataSet")
    #Displaying Queries In Checkbox
    if slt.checkbox("Display the Dimension and Shape of Laptop DataFrame"):
        slt.write(f"Number of dimensions : {data.ndim}")
        slt.write(f"Shape : {data.shape}")
    if slt.checkbox("List the Features/Attributes of Laptop DataSet?"):
        slt.write(pd.DataFrame(data.columns, columns=["Features/Attributes"]))
    if slt.checkbox("Display the Data type of each column in Laptop DataFrame"):
        #slt.dataframe(data.dtypes)
        slt.write(pd.DataFrame(data.dtypes,columns=['Data Type']))
    if slt.checkbox("Display the count of non-null values of each column in
Dataframe"):
        #slt.dataframe(data.count())
        slt.write(pd.DataFrame(data.count(),columns=['count']))
    if slt.checkbox("How many Laptops are in the DataSet?"):
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        slt.write(f"{len(data)} Laptops")
    if slt.checkbox("What is the most Expensive Laptop in DataSet? and Give it's
Specifications"):
        slt.write(data.loc[data['price'].idxmax()])
    if slt.checkbox("What is the Least Expensive Laptop in DataSet? and Give it's
Specifications"):
        slt.write(data.loc[data['price'].idxmin()])
    if slt.checkbox("What Would be the Average Price of Laptop?"):
        slt.write(f"₹{int(data['price'].mean())} Rupees")
    if slt.checkbox("Display the Basic statistics of Laptop Prices"):
        slt.write(data.price.describe())
    if slt.checkbox("What is the Highest Rated Laptop?"):
        slt.write(data.loc[data.rating.idxmax()])
    if slt.checkbox("Classify the Number of laptops Based On Operating System?"):
        slt.write(data.os.value_counts())
    if slt.checkbox("How many laptops have intel i7 processer in Laptop DataSet?"):
        slt.write(f"{len(data[data['processor'].str.contains('i7')])} Laptops
having Inter i7 processor")
    if slt.checkbox("Plot the Correlation between Price and Rating of Laptops"):
        fig,x = plt.subplots()
        plt.scatter(data['price'], data['rating'])
        plt.title('Correlation between Price and Rating')
        plt.xlabel('Price')
        plt.ylabel('Rating')
        slt.pyplot(fig)
    if slt.checkbox("Show the Distribution of Laptop Prices"):
        fig,x = plt.subplots()
        plt.hist(data['price'])
        plt.title('Distribution of Laptop Ratings')
        plt.xlabel('Rating')
        plt.ylabel('Frequency')
        slt.pyplot(fig)
    if slt.checkbox("List the Top rated laptops of price in between 30k and 40k"):
        d = (data.price >= 30000) & (data.price <=40000)
        data1 = data.loc[d].sort_values(by='rating',ascending=False).head(10)
        slt.write("Top 10 High rated laptops between 30k and 40k")
        #slt.write(data1.loc[data1.rating.idxmax()])
        slt.write(data1)
    if slt.checkbox("What is the distribution of laptop prices based on their
operating system?"):
        fig, ax = plt.subplots(figsize=(10, 6))
        sns.barplot(x='os', y='price', data=data, ax=ax)
        ax.set_xticklabels(ax.get_xticklabels(), rotation=90)
        ax.set_title('Distribution of Laptop Prices based on Operating System')
        ax.set_xlabel('Operating System')
        ax.set_ylabel('Price')
        slt.pyplot(fig)
    if slt.checkbox("What is the average price of laptops for each operating
system?"):
        avg_prices = data.groupby('os')['price'].mean().reset_index()
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        slt.write("Average prices of laptops for each operating system:")
        fig, ax = plt.subplots()
        sns.barplot(x='os', y='price', data=avg_prices, ax=ax)
        ax.set_xlabel("Operating System")
        ax.set_ylabel("Average Price")
        ax.set_title("Average Laptop Prices by Operating System")
        plt.xticks(rotation=45, ha='right')
        slt.pyplot(fig)
    if slt.checkbox("suggest 5 best laptops in the branding of Lenovo based on
rating"):
        lenovo_data = data[data['name'].str.contains('Lenovo')]
        top_5_laptops = lenovo_data.sort_values(by='rating',
ascending=False).head(5)
        slt.write("Top 5 Lenovo laptops based on rating:")
        slt.write(top_5_laptops[['name', 'processor', 'rating', 'price']])
    if slt.checkbox("Compare the Prices of i3 Processor Laptops of Brands HP and
DELL"):
        fig, ax = plt.subplots()
        d = data[data['name'].str.contains('HP') |
data['name'].str.contains("DELL")]
        d1 = d[d['processor'].str.contains('i3')]
        sns.barplot(x="price", y="name", data=d1)
        plt.xticks(rotation=50, ha='right')
        slt.pyplot(fig)
    slt.title("LAPTOP FINDER")
    if slt.checkbox("Confused about which laptop to buy? Just feed in your
requirements to our Laptop Finder and you will get best recommendations according
to your specifications"):
        brand = slt.selectbox("Select Preferred
Brand",['Lenovo','HP','DELL','APPLE','RedmiBook','SAMSUNG','MSI','realme
Book','ASUS','acer','Infinix'])
        x1 = data[data['name'].str.contains(brand)]
        p = x1.processor.unique()
        processor = slt.selectbox("Select Preferred Processor",p)
        x1 = x1[x1['processor'] == processor]
        r = x1.ram.unique()
        ram = slt.selectbox("Select Preferred RAM",r)
        x1 = x1[x1['ram'] == ram]
        s = x1.storage.unique()
        storage = slt.selectbox("Select Preferred Storage",s)
        x1 = x1[x1['storage'] == storage]
        d = x1.display_size.unique()
        display = slt.selectbox("select Preferred Display Size",d)
        x1 = x1[x1['display_size'] == display]
        price = slt.number_input("Enter Your Budget : ",value=45000,step=5000)
        x1 = x1[x1['price'] <= price]
        x1 = x1.sort_values(by='rating', ascending=False)
        x1 = x1[['name','os','ram','storage','display_size','price','rating']]
        if len(x1) == 0:
                slt.write(f"The {brand} Laptops having {processor} are bit Much
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Expensive.  -- TRY TO INCREASE YOUR BUDGET(₹ price) for the Above Requirments")
        else:
                slt.write("Here are the Best Matches for the Above Specifications")
                slt.write(x1)
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