# Import required libraries

import pandas as pd

import dash

import dash\_html\_components as html

import dash\_core\_components as dcc

from dash.dependencies import Input, Output

import plotly.express as px

# Read the airline data into pandas dataframe

spacex\_df = pd.read\_csv("spacex\_launch\_dash.csv")

max\_payload = spacex\_df['Payload Mass (kg)'].max()

min\_payload = spacex\_df['Payload Mass (kg)'].min()

# Create a dash application

app = dash.Dash(\_\_name\_\_)

# Create an app layout

app.layout = html.Div(children=[html.H1('SpaceX Launch Records Dashboard',

style={'textAlign': 'center', 'color': '#503D36',

'font-size': 40}),

# TASK 1: Add a dropdown list to enable Launch Site selection

# The default select value is for ALL sites

dcc.Dropdown(id='site-dropdown',

options=[

{'label': 'All Sites', 'value': 'ALL'},

{'label': 'CCAFS SLC-40', 'value': 'CCAFS SLC-40'},

{'label': 'CCAFS LC-40', 'value': 'CCAFS LC-40'},

{'label': 'KSC LC-39A', 'value': 'KSC LC-39A'},

{'label': 'VAFB SLC-4E', 'value': 'VAFB SLC-4E'},

],

value='ALL',

placeholder="Select a Launch Site",

searchable=True

),

html.Br(),

# TASK 2: Add a pie chart to show the total successful launches count for all sites

# If a specific launch site was selected, show the Success vs. Failed counts for the site

html.Div(dcc.Graph(id='success-pie-chart')),

html.Br(),

html.P("Payload range (Kg):"),

# TASK 3: Add a slider to select payload range

dcc.RangeSlider(id='payload-slider',

min=0, max=10000, step=1000,

marks={0: '0',

1000: '1000',

5000: '5000',

10000: '10000'},

value=[min\_payload, max\_payload]),

# TASK 4: Add a scatter chart to show the correlation between payload and launch success

html.Div(dcc.Graph(id='success-payload-scatter-chart')),

html.Br()

])

# TASK 2:

# Add a callback function for `site-dropdown` as input, `success-pie-chart` as output

# Function decorator to specify function input and output

@app.callback(Output(component\_id='success-pie-chart', component\_property='figure'),

Input(component\_id='site-dropdown', component\_property='value'))

def get\_pie\_chart(entered\_site):

filtered\_df = spacex\_df

if entered\_site == 'ALL':

fig = px.pie(filtered\_df, values='class',

names='Launch Site',

title='Count of Successful Launches')

return fig

else:

filtered\_df = spacex\_df[spacex\_df['Launch Site'] == entered\_site]

filtered\_df1 = filtered\_df.groupby(['Launch Site', 'class']).size().reset\_index(name='class count')

fig = px.pie(filtered\_df1, values='class count', names='class', title=f'Success count for {entered\_site}')

return fig

# TASK 4:

# Add a callback function for `site-dropdown` and `payload-slider` as inputs, `success-payload-scatter-chart` as output

@app.callback(Output(component\_id='success-payload-scatter-chart', component\_property='figure'),

[Input(component\_id='site-dropdown', component\_property='value'),

Input(component\_id="payload-slider", component\_property="value")])

def get\_scatter(entered\_site, slider\_range):

low, high = slider\_range

slide=(spacex\_df['Payload Mass (kg)'] > low) & (spacex\_df['Payload Mass (kg)'] < high)

dropdown\_scatter=spacex\_df[slide]

if entered\_site == 'ALL':

fig = px.scatter(

dropdown\_scatter, x='Payload Mass (kg)', y='class',

color='Booster Version Category',

title='Relationship between Payload and Successful Launch for All Sites')

return fig

else:

dropdown\_scatter = dropdown\_scatter[spacex\_df['Launch Site'] == entered\_site]

fig=px.scatter(

dropdown\_scatter,x='Payload Mass (kg)', y='class',

color='Booster Version Category',

title = f'Success by Payload Size for {entered\_site}')

return fig

# Run the app

if \_\_name\_\_ == '\_\_main\_\_':

app.run\_server()