Lab 19

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CO1: To write, test, and debug simple Python programs

CO2: To implement Python programs with conditional, loops and functions

Task 1:- Write CSV Files Using Pandas

Python Code:

```
import pandas as pd
from sqlalchemy import create_engine
import tkinter as tk

data = {
   'CHN': {'COUNTRY': 'China', 'POP': 1_398.72, 'AREA': 9_596.96,
         'GDP': 12_234.78, 'CONT': 'Asia'},
   'IND': {'COUNTRY': 'India', 'POP': 1_351.16, 'AREA': 3_287.26,
         'GDP': 2_575.67, 'CONT': 'Asia', 'IND_DAY': '1947-08-15'},
   'USA': {'COUNTRY': 'US', 'POP': 329.74, 'AREA': 9_833.52,
         'GDP': 19_485.39, 'CONT': 'N.America',
         'IND_DAY': '1776-07-04'},
   'IDN': {'COUNTRY': 'Indonesia', 'POP': 268.07, 'AREA': 1_910.93,
         'GDP': 1_015.54, 'CONT': 'Asia', 'IND_DAY': '1945-08-17'},
   'BRA': {'COUNTRY': 'Brazil', 'POP': 210.32, 'AREA': 8_515.77,
         'GDP': 2_055.51, 'CONT': 'S.America', 'IND_DAY': '1822-09-07'},
   'PAK': {'COUNTRY': 'Pakistan', 'POP': 205.71, 'AREA': 881.91,
         'GDP': 302.14, 'CONT': 'Asia', 'IND_DAY': '1947-08-14'},
   'NGA': {'COUNTRY': 'Nigeria', 'POP': 200.96, 'AREA': 923.77,
         'GDP': 375.77, 'CONT': 'Africa', 'IND_DAY': '1960-10-01'},
   'BGD': {'COUNTRY': 'Bangladesh', 'POP': 167.09, 'AREA': 147.57,
         'GDP': 245.63, 'CONT': 'Asia', 'IND_DAY': '1971-03-26'},
   'RUS': {'COUNTRY': 'Russia', 'POP': 146.79, 'AREA': 17_098.25,
         'GDP': 1_530.75, 'IND_DAY': '1992-06-12'},
   'MEX': {'COUNTRY': 'Mexico', 'POP': 126.58, 'AREA': 1_964.38,
         'GDP': 1_158.23, 'CONT': 'N.America', 'IND_DAY': '1810-09-16'},
   'JPN': {'COUNTRY': 'Japan', 'POP': 126.22, 'AREA': 377.97,
         'GDP': 4_872.42, 'CONT': 'Asia'},
   'DEU': {'COUNTRY': 'Germany', 'POP': 83.02, 'AREA': 357.11,
         'GDP': 3_693.20, 'CONT': 'Europe'},
   'FRA': {'COUNTRY': 'France', 'POP': 67.02, 'AREA': 640.68,
         'GDP': 2_582.49, 'CONT': 'Europe', 'IND_DAY': '1789-07-14'},
   'GBR': {'COUNTRY': 'UK', 'POP': 66.44, 'AREA': 242.50,
        'GDP': 2_631.23, 'CONT': 'Europe'},
    'ITA': {'COUNTRY': 'Italy', 'POP': 60.36, 'AREA': 301.34,
        'GDP': 1_943.84, 'CONT': 'Europe'},
    'ARG': {'COUNTRY': 'Argentina', 'POP': 44.94, 'AREA': 2_780.40,
        'GDP': 637.49, 'CONT': 'S.America', 'IND_DAY': '1816-07-09'},
    'DZA': {'COUNTRY': 'Algeria', 'POP': 43.38, 'AREA': 2_381.74,
        'GDP': 167.56, 'CONT': 'Africa', 'IND_DAY': '1962-07-05'},
    'CAN': {'COUNTRY': 'Canada', 'POP': 37.59, 'AREA': 9_984.67,
        'GDP': 1_647.12, 'CONT': 'N.America', 'IND_DAY': '1867-07-01'},
    'AUS': {'COUNTRY': 'Australia', 'POP': 25.47, 'AREA': 7_692.02,
        'GDP': 1_408.68, 'CONT': 'Oceania'},
    'KAZ': {'COUNTRY': 'Kazakhstan', 'POP': 18.53, 'AREA': 2_724.90,
        'GDP': 159.41, 'CONT': 'Asia', 'IND_DAY': '1991-12-16'}
}

engine = create_engine('sqllite:///data.db', echo=False)
dtypes = {'POP': 'float64', 'AREA': 'float64',
        'GDP': 'float64', 'IND_DAY': 'datatime64'}
df = pd.DataFrame(data=data).T.astype(dtype=dtypes)
print(df.dtypes)
df.to_sql('dta.db', con=engine, index_label='ID')
```

Output:

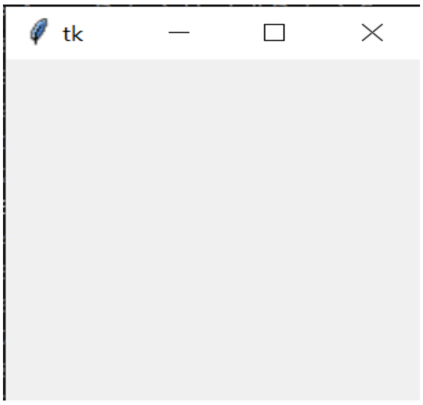
Error While Running

Task 2:- Creating a Basic Tkinter Window in Python

Python Code:

```
import pandas as pd
from sqlalchemy import create_engine
import tkinter as tk
window = tk.Tk()
window.mainloop()
```

Output:

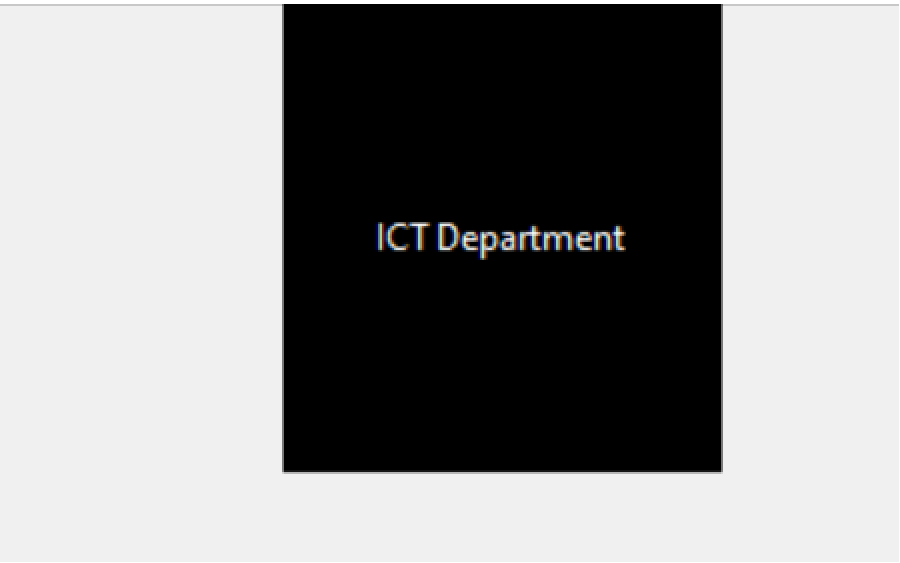


Task 3:- Creating a Tkinter Label in Python for ICT Department

Python Code:

```
window = tk.Tk()
Label = tk.Label(
    text="ICT Department",
    foreground="white",
    background="black",
    width=20,
    height=10
)
Label.pack()
window.mainloop()
```

Output:



ICT Department

Task 4:- Building a Clickable Button with Tkinter

Python Code:

```
window = tk.Tk()
button = tk.Button(
    text="CLick Me!",
    width=25,
    height=5,
    bg="blue",
    fg="yellow",
)
button.pack()
window.mainloop()
```

Output: