

# **LAB ASSIGNMENT-18.2**

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**COURSE:AI ASSISTED CODING**

**BATCH :01 (AIML)**

**QUESTION:**

## **Task 1 – Movie Database API**

**Task: Connect to a Movie Database API (e.g., OMDb or TMDB) to fetch details of a movie.**

**Instructions:**

Prompt AI to generate Python code to query the API by movie title. Handle errors like invalid movie name, missing/expired API key, and timeout.

Display title, release year, genre, IMDb rating, and director.

**Expected Output:**

A Python script that retrieves and displays movie details in a clean format.

## **Task 2 – Public Transport API**

**Task: Use a Public Transport API (e.g., city bus/train API or mock data) to fetch live arrival times.**

**Instructions:**

- Fetch the next 5 arrivals for a given stop/station ID.
- Handle invalid station codes, unavailable service, and malformed responses.
- Display results in a readable table with route number, destination, and arrival time.

**Expected Output:**

- A script that provides real-time public transport information with robust error handling.

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#### **Task 4 – Real-Time Application: Translation API**

**Scenario:** Build a translator using a free Translation API (e.g., Libre Translate, Google Translate).

**Requirements:**

Accept input text and target language from the user.

Handle invalid language codes, API quota exceeded, and empty text input.

Display original and translated text clearly.

Implement a retry mechanism if the API fails on the first attempt.

**Expected Output:**

A script that translates text to the specified language with strong error handling.

**TASK\_1**

```
import requests

api_key = "64537a40" # Replace with your actual API key
base_url = "http://www.omdbapi.com/"

# Construct the full API request URL
url = f"{base_url}?apikey={api_key}&t={movie_title}"

# Make the GET request and handle potential errors
try:
    response = requests.get(url, timeout=10) # Added timeout for robustness
    response.raise_for_status() # Raise an HTTPError for bad responses (4xx
    print("API request successful.")

    # Handle API response
    try:
        movie_data = response.json()

        if movie_data.get("Response") == "True":
            title = movie_data.get("Title", "N/A")
            year = movie_data.get("Year", "N/A")
            genre = movie_data.get("Genre", "N/A")
            imdb_rating = movie_data.get("imdbRating", "N/A")
            director = movie_data.get("Director", "N/A")

            print("\nMovie Details:")
            print(f"Title: {title}")
            print(f"Release Year: {year}")
            print(f"Genre: {genre}")

    except json.JSONDecodeError:
        print("Error decoding JSON response from API.")


except requests.RequestException as e:
    print(f"Request failed: {e}")
```



```
print(f"Title: {title}")
print(f"Release Year: {year}")
print(f"Genre: {genre}")
print(f"IMDb Rating: {imdb_rating}")
print(f"Director: {director}")
else:
    # Handle API-specific errors (e.g., movie not found, invalid API
    print(f"Error from API: {movie_data.get('Error', 'Unknown API er
except requests.exceptions.JSONDecodeError:
    print("Error: Could not parse JSON response from API.")

except requests.exceptions.Timeout:
    print("Error: The request to the API timed out.")
except requests.exceptions.ConnectionError:
    print("Error: Could not connect to the API. Please check your internet c
except requests.exceptions.HTTPError as e:
    print(f"HTTP error occurred: {e}")
except requests.exceptions.RequestException as e:
    print(f"An unexpected error occurred during the API request: {e}")

...
API request successful.
```

Movie Details:  
Title: Kushi  
Release Year: 2023  
Genre: Comedy, Drama, Romance  
IMDb Rating: 5.4  
Director: Shiva Nirvana

## TASK-2

```
▶ import requests  
    import json
```



```
# 1. Define Mock Data  
mock_arrival_data = {  
    "arrivals": [  
        {  
            "route": "101",  
            "destination": "Downtown",  
            "arrival_time": "5 minutes"  
        },  
        {  
            "route": "205",  
            "destination": "Uptown",  
            "arrival_time": "12 minutes"  
        },  
        {  
            "route": "50",  
            "destination": "Airport",  
            "arrival_time": "20 minutes"  
        },  
        {  
            "route": "303",  
            "destination": "Suburbia",  
            "arrival_time": "25 minutes"  
        },  
        {  
            "route": "417",  
            "destination": "City Center",  
            "arrival_time": "30 minutes"  
        }  
    ]  
}
```

```
▶ station_id = input("Please enter the station ID: ") [↑ ↓ ⌛ ⟲ :]

# 3. Fetch Data from API or Use Mock Data
api_key = "64537a40" # Replace with your actual API key
base_url = "http://api.publictransport.io/v1/" # Replace with the actual API

# Construct the full API request URL
# This URL format is an example, replace it with the actual API endpoint and
url = f"{base_url}arrivals?station_id={station_id}&apikey={api_key}"

api_available = False
fetched_data = None

if api_key != "YOUR_API_KEY":
    try:
        response = requests.get(url, timeout=10) # Added timeout for robustness
        response.raise_for_status() # Raise an HTTPError for bad responses
        fetched_data = response.json()
        api_available = True
        print("API request successful.")

    except requests.exceptions.Timeout:
        print("Error: The request to the API timed out. Using mock data.")
    except requests.exceptions.ConnectionError:
        print("Error: Could not connect to the API. Please check your internet connection")
    except requests.exceptions.HTTPError as e:
        print(f"HTTP error occurred: {e}. Using mock data.")
    except requests.exceptions.RequestException as e:
        print(f"An unexpected error occurred during the API request: {e}. Using mock data.")


```

```
    else:
        print("API key not provided or is placeholder. Using mock data.")

    if not api_available:
        data_to_process = mock_arrival_data # Use mock data if API request failed
    else:
        data_to_process = fetched_data

# 4. Handle API Response and Errors
if data_to_process and isinstance(data_to_process.get("arrivals"), list):
    print("Arrivals data found and is in the correct format.")

# 5. Extract and Format Arrival Times
arrivals_list = data_to_process.get("arrivals", [])
extracted_arrivals = []

for i, arrival in enumerate(arrivals_list[:5]):
    if isinstance(arrival, dict):
        route = arrival.get("route", "N/A")
        destination = arrival.get("destination", "N/A")
        arrival_time = arrival.get("arrival_time", "N/A")
        extracted_arrivals.append({
            "Route Number": route,
            "Destination": destination,
            "Arrival Time": arrival_time
        })
    else:
        print(f"Warning: Skipping invalid arrival entry at index {i}.")
```

▶

```
# 6. Display Results
if extracted_arrivals:
    print("\n--- Next 5 Arrivals ---")
    # Print header
    header = "| {:<15} | {:<20} | {:<15} |".format("Route Number", "Dest"
print("-" * len(header))
print(header)
print("-" * len(header))

# Print rows
for arr in extracted_arrivals:
    row = "| {:<15} | {:<20} | {:<15} |".format(
        arr["Route Number"],
        arr["Destination"],
        arr["Arrival Time"]
    )
    print(row)

    print("-" * len(header))
else:
    print("No arrival data to display.")

else:
    print("Error: 'arrivals' key not found in data or data is not a list. Ca

# Print the data used (either fetched or mock)
print("\n--- Data Used (JSON) ---")
print(json.dumps(data_to_process, indent=4))
```



Please enter the station ID: 101  
API key not provided or is placeholder. Using mock data.  
... Arrivals data found and is in the correct format.



--- Next 5 Arrivals ---

Route Number	Destination	Arrival Time
101	Downtown	5 minutes
205	Uptown	12 minutes
50	Airport	20 minutes
303	Suburbia	25 minutes
417	City Center	33 minutes

--- Data Used (JSON) ---

```
{  
    "arrivals": [  
        {  
            "route": "101",  
            "destination": "Downtown",  
            "arrival_time": "5 minutes"  
        },  
        {  
            "route": "205",  
            "destination": "Uptown",  
            "arrival_time": "12 minutes"  
        },  
        {  
            "route": "50",  
            "destination": "Airport",  
            "arrival_time": "20 minutes"  
        }  
    ]  
}
```

### Task-3

```
▶ import yfinance as yf
  import pandas as pd
  import io

def get_stock_data(ticker):
    """
    Fetches the latest daily stock data for a given ticker symbol.
    Uses yfinance as a fallback if no dedicated API key is available.
    Handles invalid ticker symbols and null/empty responses.
    """
    stock_data = None
    api_key = "64537a40" # Replace with your Alpha Vantage API key

    # --- Attempt to use a dedicated API (Alpha Vantage example) ---
    if api_key != "YOUR_ALPHA_VANTAGE_API_KEY":
        base_url = "https://www.alphavantage.co/query"
        params = {
            "function": "TIME_SERIES_DAILY_ADJUSTED",
            "symbol": ticker,
            "apikey": api_key,
            "outputsize": "compact" # or "full" for more data
        }
        try:
            print(f"Attempting to fetch data for {ticker} from Alpha Vantage")
            response = requests.get(base_url, params=params, timeout=10)
            response.raise_for_status()
            data = response.json()
        
```



```
if "Time Series (Daily)" in data:
    # Get the latest day's data
    latest_day_key = list(data["Time Series (Daily)"].keys())[0]
    daily_data = data["Time Series (Daily)"][latest_day_key]
    stock_data = {
        "Open": daily_data["1. open"],
        "Close": daily_data["4. close"],
        "High": daily_data["2. high"],
        "Low": daily_data["3. low"],
        "Volume": daily_data["6. volume"]
    }
    print("Successfully fetched data from Alpha Vantage.")
elif "Error Message" in data:
    print(f"Error from Alpha Vantage API: {data['Error Message']}")
else:
    print("Unexpected response format from Alpha Vantage API.")

except requests.exceptions.Timeout:
    print("Alpha Vantage API request timed out. Falling back to yfin")
except requests.exceptions.ConnectionError:
    print("Could not connect to Alpha Vantage API. Falling back to y")
except requests.exceptions.HTTPError as e:
    print(f"HTTP error from Alpha Vantage API: {e}. Falling back to y")
except requests.exceptions.RequestException as e:
    print(f"An unexpected error occurred with Alpha Vantage API requ")
except requests.exceptions.JSONDecodeError:
    print("Error: Could not parse JSON response from Alpha Vantage .")
if stock_data is None:
    print(f"Fetching data for {ticker} using yfinan...,")

try:
    ticker_data = yf.Ticker(ticker)
    # Get the latest day's data
    hist = ticker_data.history(period="1d")

    if not hist.empty:
        latest_day_data = hist.iloc[0]
        stock_data = {
            "Open": latest_day_data["Open"],
            "Close": latest_day_data["Close"],
            "High": latest_day_data["High"],
            "Low": latest_day_data["Low"],
            "Volume": latest_day_data["Volume"]
        }
        print("Successfully fetched data from yfinance.")
    else:
        print(f"Error: No data found for ticker symbol '{ticker}' us")

except Exception as e:
    print(f"An error occurred while fetching data with yfinance: {e}")

return stock_data

# --- Main part of the script ---
if __name__ == "__main__":
    ticker_symbol = input("Please enter the stock ticker symbol (e.g., AAPL)
```



```
return stock_data

# --- Main part of the script ---
if __name__ == "__main__":
    ticker_symbol = input("Please enter the stock ticker symbol (e.g., AAPL)

    daily_data = get_stock_data(ticker_symbol)

    # --- Display Results ---
    if daily_data:
        print("\n--- Latest Daily Stock Data ---")
        # Create a pandas DataFrame for formatted display
        df = pd.DataFrame([daily_data])

        # Format numerical columns for better readability
        for col in ["Open", "Close", "High", "Low"]:
            df[col] = df[col].apply(lambda x: f"{x:.2f}")
        df["Volume"] = df["Volume"].apply(lambda x: f"{x:,}")

        # Use display() for a nicely formatted table in Colab
        display(df)

    else:
        print(f"Could not retrieve stock data for {ticker_symbol}.")

    # --- Sample Run and Output ---
    print("\n--- Sample Run ---")

... Please enter the stock ticker symbol (e.g., AAPL): AAPL
Fetching data for AAPL using yfinance...
Successfully fetched data from yfinance.

--- Latest Daily Stock Data ---
  Open   Close    High     Low      Volume
0  268.96  269.43  273.73  267.46  41,282,100.0
```

## TASK\_4

```
▶ import requests
    import time

    def translate_text(text, target_lang):
        """
        Translates text to a target language using the LibreTranslate API.
        Includes a retry mechanism for API calls.
        """
        api_url = "https://libretranslate.com/translate"
        # LibreTranslate might require an API key for some instances

        # Replace with your actual API key if required by the LibreTranslate instance
        api_key = "64537a40"

        payload = {
            "q": text,
            "source": "auto", # Automatically detect source language
            "target": target_lang,
            "api_key": api_key # Include API key in the payload
        }

        retries = 2
        for attempt in range(retries + 1):
            try:
                print(f"Attempt {attempt + 1}/{retries + 1} to translate...")
                response = requests.post(api_url, json=payload, timeout=10)
                response.raise_for_status() # Raise HTTPError for bad responses
                translated_data = response.json()
```





```
if "translatedText" in translated_data:
    print("Translation successful.")
    return translated_data["translatedText"]
elif "error" in translated_data:
    print(f"API error: {translated_data['error']}"))
    return f"Error: {translated_data['error']}"

else:
    print("Unexpected API response format.")
    return "Error: Unexpected API response format."


except requests.exceptions.Timeout:
    print("Request timed out.")
except requests.exceptions.ConnectionError:
    print("Could not connect to the API.")
except requests.exceptions.HTTPError as e:
    print(f"HTTP error occurred: {e}")
    if response.status_code == 400: # Bad Request, often due to invalid input
        error_message = response.json().get("error", "Bad request")
        return f"Error: {error_message}"
    elif response.status_code == 429: # Too Many Requests (Quota Exceeded)
        print("API quota exceeded. Please try again later.")
        if attempt < retries:
            time.sleep(2 * (attempt + 1)) # Wait before retrying
            continue
        return "Error: API quota exceeded after multiple retries."
    elif response.status_code == 503: # Service Unavailable
        print("API service unavailable.")
        if attempt < retries:
            time.sleep(2 * (attempt + 1)) # Wait before retrying
```

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```
# --- Main part of the script ---
if __name__ == "__main__":
    # Get user input
    input_text = input("Enter the text to translate: ")
    if not input_text:
        print("Error: Input text cannot be empty.")
    else:
        target_language = input("Enter the target language code (e.g
        if not target_language:
            print("Error: Target language code cannot be empty.")
        else:
            # Perform translation
            translated_text = translate_text(input_text, target_lang

            # Display results
            print("\n--- Translation Result ---")
            print(f"Original Text: {input_text}")
            print(f"Translated Text: {translated_text}")

# --- Sample Input and Output ---
print("\n--- Sample Run ---")
sample_text = "Hello, how are you?"
sample_lang = "fr"
print(f"Sample Input Text: {sample_text}")
print(f"Sample Target Language: {sample_lang}")
sample_translated_text = translate_text(sample_text, sample_lang)
print(f"Sample Translated Text: {sample_translated_text}")
print("\n--- End of Sample Run ---")
print(f"Translated Text: {sample_translated_text} ,

# --- Sample Input and Output ---
print("\n--- Sample Run ---")
sample_text = "Hello, how are you?"
sample_lang = "fr"
print(f"Sample Input Text: {sample_text}")
print(f"Sample Target Language: {sample_lang}")
sample_translated_text = translate_text(sample_text, sample_lang)
print(f"Sample Translated Text: {sample_translated_text}")
print("\n--- End of Sample Run ---")
```

... o translate: Hello,How are you?  
language code (e.g., es for Spanish, fr for French, de for German): es  
ranslate...  
red: 403 Client Error: Forbidden for url: <https://libretranslate.com/translate>  
ranslate...  
red: 403 Client Error: Forbidden for url: <https://libretranslate.com/translate>  
ranslate...  
red: 403 Client Error: Forbidden for url: <https://libretranslate.com/translate>

Result ---  
Hello,How are you?