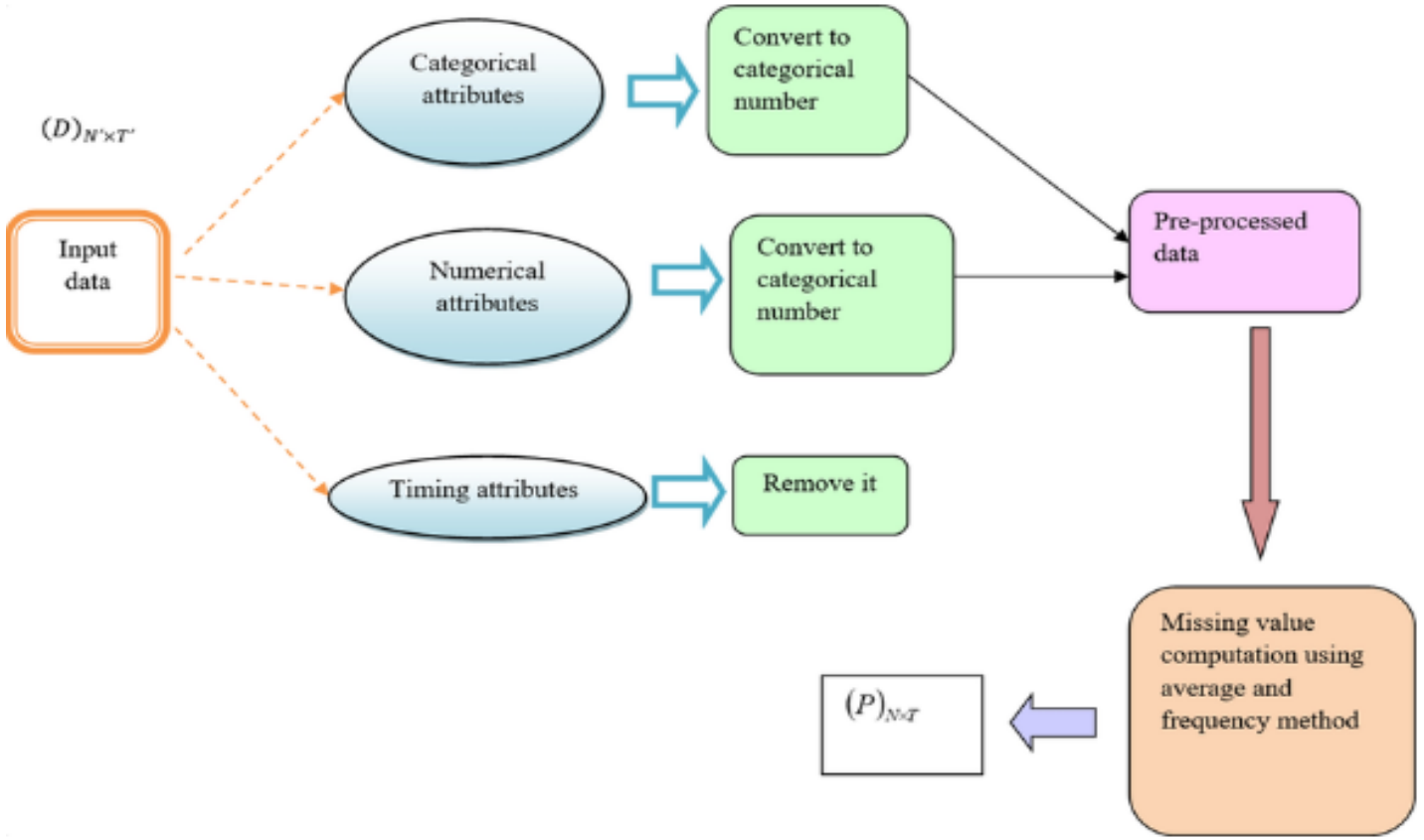
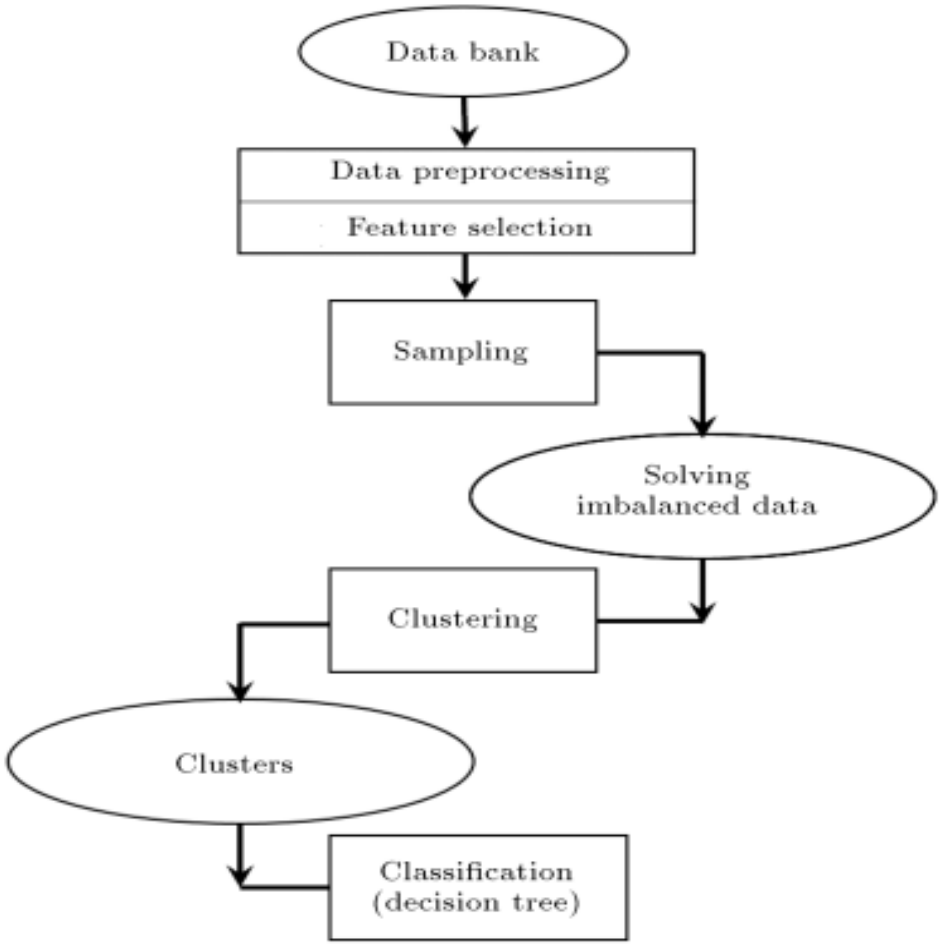
# FLIGHT DELAY PREDICTIONS AND AIRLINE OPERATIONS USING K-MEANS

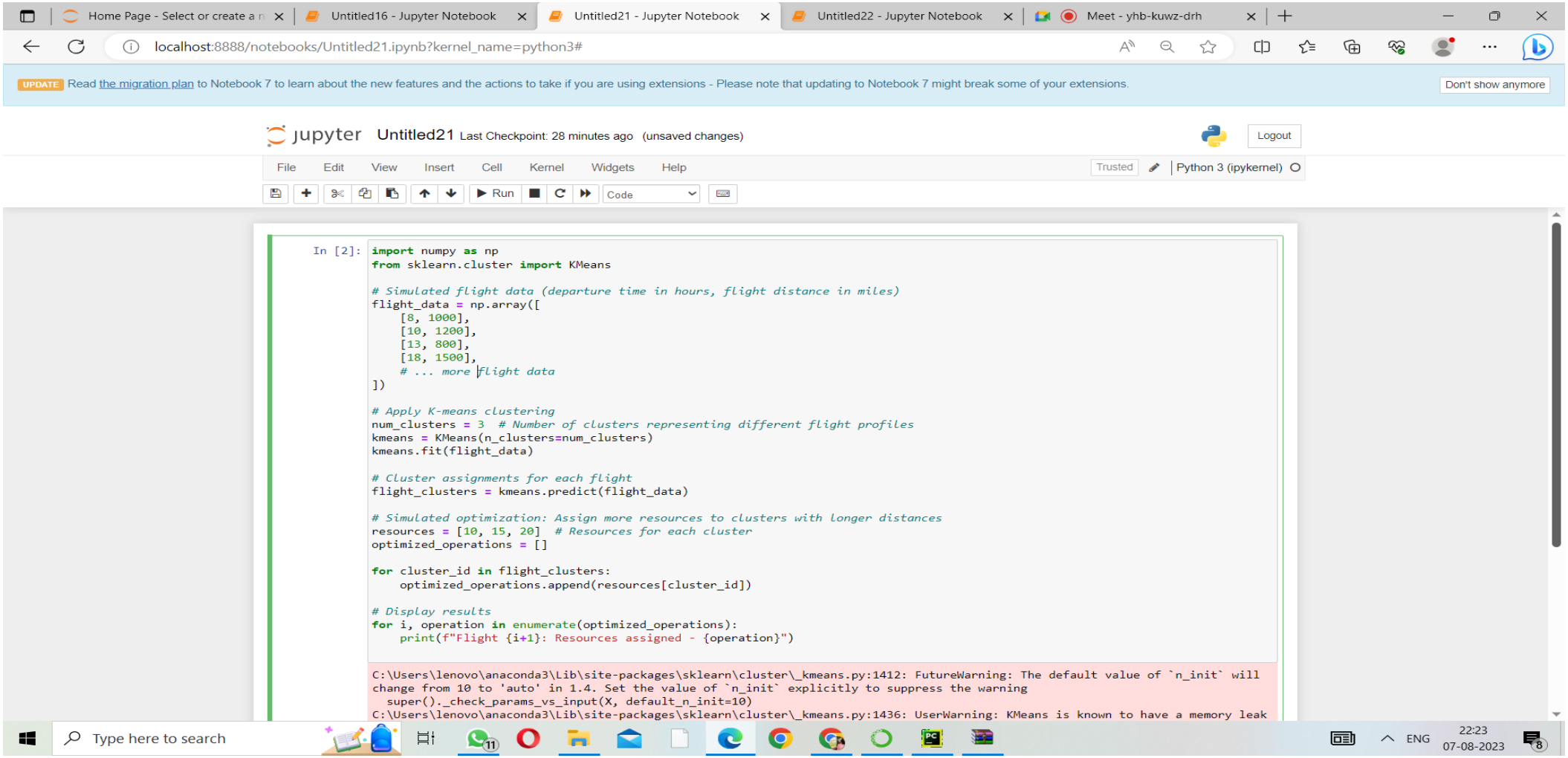
# DATA FLOW DIAGRAM



# FLOW CHART


Data bank
Data preprocessing
Feature selection
Sampling
Solving
imbalanced data
Clustering
Clusters
Classification
(decision tree)

# CODE


Home Page - Select or create a n
Untitled16 - Jupyter Notebook
Untitled21 - Jupyter Notebook
Untitled22 - Jupyter Notebook
Meet - yhb-kuwz-drh
localhost:8888/notebooks/Untitled21.ipynb?kernel_name=python3#
UPDATE Read the migration plan to Notebook 7 to learn about the new features and the actions to take if you are using extensions - Please note that updating to Notebook 7 might break some of your extensions.
Don't show anymore
jupyter Untitled21 Last Checkpoint: 28 minutes ago (unsaved changes)
Logout
File Edit View Insert Cell Kernel Widgets Help
Trusted
Python 3 (ipykernel)
Run
Code
In [2]:
import numpy as np
from sklearn.cluster import KMeans
# Simulated flight data (departure time in hours, flight distance in miles)
flight_data = np.array([
[8, 1000],
[10, 1200],
[13, 800],
[18, 1500],
# ... more flight data
])
# Apply K-means clustering
num_clusters = 3 # Number of clusters representing different flight profiles
kmeans = KMeans(n_clusters=num_clusters)
kmeans.fit(flight_data)
# Cluster assignments for each flight
flight_clusters = kmeans.predict(flight_data)
# Simulated optimization: Assign more resources to clusters with longer distances
resources = [10, 15, 20] # Resources for each cluster
optimized_operations = []
for cluster_id in flight_clusters:
optimized_operations.append(resources[cluster_id])
# Display results
for i, operation in enumerate(optimized_operations):
print(f"Flight {i+1}: Resources assigned - {operation}")
C:\Users\lenovo\anaconda3\Lib\site-packages\sklearn\cluster_kmeans.py:1412: FutureWarning: The default value of `n_init` will change from 10 to 'auto' in 1.4. Set the value of `n_init` explicitly to suppress the warning
super()._check_params_vs_input(X, default_n_init=10)
C:\Users\lenovo\anaconda3\Lib\site-packages\sklearn\cluster_kmeans.py:1436: UserWarning: KMeans is known to have a memory leak
Type here to search
ENG
22:23
07-08-2023

# OUTPUT

```
change from 10 to 'auto' in 1.4. Set the value of `n_init` explicitly to suppress the warning
  super()._check_params_vs_input(X, default_n_init=10)
C:\Users\lenovo\anaconda3\Lib\site-packages\sklearn\cluster\_kmeans.py:1436: UserWarning: KMeans is known to have a memory leak
on Windows with MKL, when there are less chunks than available threads. You can avoid it by setting the environment variable OM
P_NUM_THREADS=1.
  warnings.warn(

Flight 1: Resources assigned - 10
Flight 2: Resources assigned - 10
Flight 3: Resources assigned - 15
Flight 4: Resources assigned - 20
```