Predictive Model Code Snippet (Python)

Below is a Python code snippet for predicting patient readmission risks or disease outbreaks using hospital or public health datasets. This serves as a baseline model that can be expanded with more advanced ML techniques.

```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import classification_report, accuracy_score
import joblib

# Load dataset (Replace with actual dataset path)
data = pd.read_csv("data/patient_readmissions.csv")

# Define features and target
X = data.drop("readmission_status", axis=1)  # All columns except target
y = data["readmission_status"]               # Binary target: 0 = No, 1 = Yes

# Split dataset
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

# Train logistic regression model
model = LogisticRegression(max_iter=1000)
model.fit(X_train, y_train)

# Predictions
y_pred = model.predict(X_test)

# Evaluation
print("Accuracy:", accuracy_score(y_test, y_pred))
print(classification_report(y_test, y_pred))

# Save the model for deployment
joblib.dump(model, "models/readmission_model.pkl")
```