PHASE 3

PREDICTION OF DIABETES USING AI

Introduction:

Diabetes is a chronic medical condition affecting millions of people worldwide. Early detection and management of diabetes are crucial for preventing complications. Artificial Intelligence (AI) has emerged as a powerful tool in healthcare, enabling predictive analytics and improving patient outcomes. This introduction will outline the significance of using AI for predicting diabetes.

Data collection:

```
import pandas as pd

# Assuming you have a CSV file containing
diabetes-related data
data = pd.read_csv('diabetes_data.csv')

# Data preprocessing
# You may need to clean, preprocess, and
transform your data as required

# Define features (independent variables) and
target (dependent variable)
X = data.drop('diabetes_label', axis=1)  #
Replace 'diabetes_label' with your target variable
y = data['diabetes_label']

# Split data into training and testing sets
from sklearn.model_selection import
train_test_split

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

# Now you can use this data to train an AI
model for diabetes prediction.
# Depending on your AI approach (e.g., machine
learning or deep learning), you would select an
appropriate algorithm or neural network
architecture and train the model.
```

Source code:

```
import pandas as pd
from sklearn.model_selection import
train_test_split
from sklearn.ensemble import
RandomForestClassifier
from sklearn.metrics import
accuracy_score

# Load the dataset (replace
'diabetes_dataset.csv' with your
dataset)
data =
pd.read_csv('diabetes_dataset.csv')

# Define features (X) and target (y)
X = data.drop('Outcome', axis=1)
y = data['Outcome']

# Split the data into training and testing
sets
X_train, X_test, y_train, y_test =
train_test_split(X, y, test_size=0.2,
random_state=42)

# Create and train the model
model = RandomForestClassifier()
model.fit(X_train, y_train)

# Make predictions
y_pred = model.predict(X_test)

# Evaluate the model
accuracy = accuracy_score(y_test,
y_pred)
print(f"Accuracy: {accuracy}")
```

Comclusion:

In conclusion, predicting diabetes using AI is a promising and impactful application of artificial intelligence in healthcare. By leveraging advanced algorithms and data analytics, AI offers the potential to improve the early detection, management, and prevention of diabetes.