**NAME: KINGSTON ENGINEERING COLLEGE**

**COLLEGE CODE:5113**

**DOMAIN : ARTIFICIAL INTELLIGENCE**

**PROJECT TITLE:AI BASED DIABETES PREDICTION SYSTEM COLLEGE**

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**INTRODUCTION:**

IN THE TECHNOLOGY OF ARTIFICIAL INTELLIGENCE TO CONTINUE BUILDING THE DIABETES PREDICTION PROJECT, WE'LL GO THROUGH THE FOLLOWING STEPS:

**SELECTING A MACHINE LEARNING ALGORITHM:**

For a binary classification problem like diabetes prediction, several algorithms can be effective. Common choices include logistic regression, support vector machines (svm), random forest, gradient boosting, neural networks, etc.

Since you mentioned using artificial intelligence, we could consider using a deep learning model like a convolutional neural network (cnn) or a recurrent neural network (rnn).

**DATA PREPROCESSING:**

Load and preprocess the dataset. This includes handling missing values, normalizing/standardizing features, and splitting the data into training and testing sets.

**FEATURE SELECTION/ENGINEERING:**

Identify and select relevant features. You might also want to consider feature engineering to create new features or transform existing ones.

**MODEL TRAINING:**

Train the selected machine learning algorithm on the pre-processed data using the training set.

**MODEL EVALUATION:**

Evaluate the model using appropriate metrics. For a binary classification problem like diabetes prediction, common metrics include accuracy, precision, recall, f1-score, etc.

**FINE-TUNING AND HYPERPARAMETER OPTIMIZATION**:

Depending on the algorithm chosen, there may be hyperparameters that need to be tuned to achieve better performance. Techniques like grid search or random search can be used for this purpose.

**CROSS-VALIDATION**:

Perform cross-validation to assess the model's generalization performance.

**MODEL INTERPRETABILITY (OPTIONAL BUT RECOMMENDED):**

Depending on the model used, it might be helpful to understand which features are driving the predictions. Techniques like shape values, lime, or feature importance plots can be used.

**DEPLOYMENT**:

Once you have a satisfactory model, deploy it for practical use. This can be done using various methods like creating a web application, deploying , or integrating into an existing system.

**MONITORING AND MAINTENANCE**:

Continuously monitor the model's performance in the real-world setting. If necessary, retrain the model with new data or update it with improved versions.

**CONCLUSION:**

Therefore, in this technology we built our project by selecting a machine learning algorithm, training the model, and evaluated its performance by using the given dataset.

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