Probability and Statistics

### Predicting Diabetes in Pima Indians

In this project we will design and develop various supervised learning models for predicting whether a patient has diabetes or not. Diabetes is a disease that occurs when the blood glucose, also called blood sugar, is too high. Blood glucose is the main source of energy and comes from the food we eat. Insulin is a hormone made by the pancreas that allows our body to use sugar (glucose) from carbohydrates in the food that we eat for energy or to store glucose for future use. Insulin helps keeps our blood sugar level from getting too high (hyperglycemia) or too low (hypoglycemia). When our body does not produce enough insulin to convert the glucose, the excess glucose then stays in our blood and doesn’t reach our cells. Over time, having too much glucose in our blood can cause health problems. Although diabetes has no cure, we can take steps to manage our diabetes and stay healthy. In this project we will develop different machine learning models to predict whether a patient has diabetes or not based on different characteristics such as Blood Pressure, Skin Thickness, Insulin Level, BMI, Plasma Glucose Level and so on. The data set for this project is taken from National Institute of Diabetes and Digestive and Kidney Diseases. All patients in this data set are females at least 21 years old of Pima Indian heritage. The Pima Indians (or Akimel Oʼodham, also spelled Akimel Oʼotham, "River People", formerly known as Pima) are a group of Native Americans living in an area consisting of what is now central and southern Arizona. Diabetes is an increasingly prevalent chronic disease characterized by the body’s inability to metabolize glucose. Finding the disease at the early stage helps reduce medical costs and the risk of patients having more complicated health problems. This modelling project will help detect diabetes at early stages and will help us take effective action and to stay healthy.

### References

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