\*\*Diabetes Dataset\*\*

These data are courtesy of Dr John Schorling, Department of Medicine, University of Virginia School of Medicine which can be obtained from http://biostat.mc.vanderbilt.edu/DataSets.

The data consist of 19 variables on 403 subjects from 1046 subjects who were interviewed in a study to understand the prevalence of obesity, diabetes, and other cardiovascular risk factors in central Virginia for African Americans. According to Dr John Hong, Diabetes Mellitus Type II (adult onset diabetes) is associated most strongly with obesity. The waist/hip ratio may be a predictor in diabetes and heart disease. Type 2 Diabetes is also associated with hypertension - they may both be part of Metabolic Syndrome.

\*\*Metabolic syndrome\*\* is a collection of risk factors that includes high blood pressure, high blood sugar, excess body fat around the waist, and abnormal cholesterol levels. The syndrome increases the chance of developing heart disease, stroke, and diabetes. Aside from a large waist circumference, most of the disorders associated with metabolic syndrome have no symptoms. Losing weight, exercise, and dietary changes can help prevent or reverse metabolic syndrome. According to a national health survey, more than 1 in 5 Americans has metabolic syndrome. The number of people with metabolic syndrome increases with age, affecting more than 40% of people in their 60s and 70s.

The 403 subjects were the ones who were actually screened for diabetes. Glycosolated hemoglobin (A1C) > 7.0 is usually taken as a positive diagnosis of diabetes.

Type 2 diabetes is a chronic condition that affects the way the body metabolizes sugar (glucose). With type 2 diabetes, the body either resists the effects of insulin (a hormone that regulates the movement of sugar into cells) or it doesn't produce enough insulin to maintain normal glucose levels. Type 2 diabetes occurs more commonly in middle-aged and elderly people. Uncontrolled it can cause all sorts of very bad things: infections, damaged kidneys, vision loss and blindness, amputations and many more. So, there is no question that type 2 diabetes needs to be taken seriously and treated. Type 2 diabetes is usually diagnosed using the glycated hemoglobin (A1C) test. This blood test indicates the average blood sugar level for the past two to three months. Normal levels are below 5.7 percent, and a result between 5.7 and 6.4 percent is considered prediabetes. An A1C level of 6.5 percent or higher on two separate tests means you have diabetes. People who have diabetes need this test regularly to see if their levels are staying within range and if they need to adjust their diabetes medicines. To treat type 2 diabetes lifestyle changes are very effective, and the side effects of eating more healthfully and staying more active are positive ones. In this project try to predict A1C levels: no-diabetes, pre-diabetes and diabetes