# Selected Features

From sheet ‘Baseline info’:

1. Age - higher should correlate with mortality
2. Gender - male should correlate with mortality
3. Stroke diagnosis (Ischemic/hemorrhagic) on admission
   1. In other words - type of stroke
   2. Hemorrhagic should correlate with mortality
4. Cardio-vascular disease (Heart disease, in excel: History of CVD)
   1. Take all unique diseases, create feature for each, for arterial hypertension and its risk feature already exists
5. History of hypertension (yes/no)
   1. Positive should correlate with mortality
6. History of Diabetes Mellitus (yes/no)
   1. Positive should correlate with mortality
7. Area of stroke (LMCA/LPCA/LACA/RMCA/RPCA/RACA)
   1. Remove those that are not in the list
   2. Have no idea on the trend
8. Glucocorticosteroids in ICU (yes/no)
   1. Have no idea on the trend

11. Patient ID

12. Target Feature - Death (yes/no or 1/0)

Each from a separate sheet:

1. Systolic Blood Pressure (SBP) (separate sheet, calculate average for each)
   1. Higher should correlate with mortality
2. Glasgow Coma Score (separate sheet, calculate average for each)
   1. Lower should correlate with mortality

# Methods

* Logistic Regression
* Decision Trees Classifier
* **Random Forests Classifier**
* Naive Bayes Classifier
* SVM

# Literature Review

1. Outcome Predictors of Acute Stroke Patients in Need of Intensive Care Treatment
   1. Link: <https://www.karger.com/Article/FullText/430871>
   2. Year: 2015
   3. Factors:
      1. **old age**
      2. poor NIHSS score at admission
      3. **hemorrhage**
      4. mechanical ventilation
      5. admission to ICU because of stroke-related impairment of consciousness
2. Prognosis of acute stroke
   1. Link: <https://www.neurology.org/lookup/doi/10.1212/WNL.37.2.221>
   2. Year: 1987
   3. Factors:
      1. low level of activity at hospital discharge
      2. advanced age (same as old age)
      3. male sex
      4. **heart disease**
      5. **hypertension**
3. Factors associated with death and predictors of one-month mortality from stroke in Kano, Northwestern Nigeria
   1. Link: <http://www.thieme-connect.de/DOI/DOI?10.4103/0976-3147.116460>
   2. Year: 2013
   3. Method: Logistic regression
   4. Factors:
      1. **severe systolic blood pressure > 160**
      2. severe diastolic pressure
      3. second or more episode of stroke
      4. **severe GCS (Glasgow Coma Score) < 8**
      5. seizures
      6. abnormal pupillary size
      7. hemorrhagic stroke type
      8. presence of aspiration pneumonitis
      9. RBS > 200 mg/dl
4. Applying Machine Learning Techniques for Stroke Prediction in Patients
   1. [Link](https://ieeexplore-ieee-org.ezproxy.nu.edu.kz/stamp/stamp.jsp?tp=&arnumber=9675652)
   2. Year: 2021
   3. Factors:
   4. Type of work
   5. Gender
   6. Age
   7. Marital status and type of residence
   8. Hypertension
   9. Average glucose level
   10. Heart disease
   11. Body mass index
   12. Smoking status
   13. Earlier experience of stroke
5. Outcome prediction in terms of functional disability and mortality at 1 year among ICU-admitted severe stroke patients: a prospective epidemiological study in the south of the European Union (Evascan Project, Andalusia, Spain)
   1. [Link](https://www.academia.edu/10311074/Outcome_prediction_in_terms_of_functional_disability_and_mortality_at_1_year_among_ICU_admitted_severe_stroke_patients_a_prospective_epidemiological_study_in_the_south_of_the_European_Union_Evascan_Project_Andalusia_Spain)
6. Year: 2003
7. Factors:

* Old age
* Hemorrhage
* Stroke type

1. Recommendations on stroke prevention, diagnosis, and therapy. Report of the WHO Task Force on Stroke and other Cerebrovascular Disorders.
   1. [Link](https://pubmed.ncbi.nlm.nih.gov/2799873/)
   2. Year: 1989
   3. Factors:

* Arterial Hypertension
* Heart disease
* TIA and completed stroke
* Obesity
* Elevated Blood Lipid Levels
* Hyperuricemia
* Cerebral infection
* Advanced age and male sex

1. Stroke risk factors, subtypes and outcome in elderly Thai patients
   1. Year: 2021
   2. Factors:

* hypertension
* dyslipidemia
* diabetes mellitus
* Previous stroke, TIA, MI

1. Risk Factors for Stroke Based on the National Health and Nutrition Examination Survey
   1. [Link](https://link.springer.com/article/10.1007/s12603-020-1430-4)
   2. Year: 2020
   3. Factors:

* diabetes
* lower household income (<$2000)
* depression
* trouble sleep
* older age
* higher concentration of blood lead