Project : Hospital ICU

Part 1 :

Build a simulation model that represent the patient flow inside the ICU.

The ICU capacity is 15 beds. If all the beds are occupied, the patient can not enter the ICU and will be rejected.

Once a patient is in the ICU, a nurse is assigned to the specific patient.

After his stay in the ICU, the patient can either leave the system or can go back to the ICU.

All the data, such as the arrival rate, the length of stay of patients, the return rate …, must be retrieve from the data set provided.

* Each parameter must be the result on a data analysis from the data set and you should be able to explain it.
* Define the KPI’s you want to study from your model.
* Provide a 3D model.

Part 2 :

Build a predictive model to predict if a patient is either ready to leave the ICU or if he should stay.

The target is the attribute **bad**.

If bad = 0 and last = in, it means the patient stayed and should stay.

If bad = 1 and last = last, it means the patient left and he should left.

If bad = 0 and last = last, it means the patient left and he should stay (or is dead).

If bad = 1 and last = in, it means the patient left and he should leave.

About the attribute, the SAPS is an estimation of the probability of mortality, Glasgow describe the extent of impaired consciousness, TISS quantify the amount of intensive care treatment needed, PA means blood pressure, FC means heart rate and gender = 1 is for male and gender = 0 for female.

Also, each patient has a unique CODE but can have different ID which represent several stay in the ICU.

* Start with a data analysis of the data set based on the KPI’s you’ve chosen.
* No recommendation for the data preprocessing and the models, it’s up to you.
* Do a threshold study.

At the end, you should provide a **professional** report on your work with all the explanations.