Generating a CPN Model from an Event Log:

In this project, the goal is to generate a CPN model using the discovered Petri net from the real event log. The real event log is being transformed into the enriched Petri net including all the information (time, the flow of activities,…). The discovered Petri net and information will be used to generate a CPN model which later on can be used as a simulation model. The user can change some information such as service time of activities or arrival rate of the process and perform the simulation (generating the CPN model) for a specific period of time.

1. Import an event log (.csv and .xes)
2. Discover process model in the form of Petri net
    a. Choices, redundancy, and sequences should be clear for simulation
3. Enrich the discovered Petri net with the performance information
    a. Extract arrival rate of the process
    b. Extract all activities service time
    c. Extract the number of resources for each activity
    d. All other needed information for simulation
4. Generate a .cpn model file including all the discovered information
5. Giving the option to user to change the parameters for the CPN model creation step
6. Run the CPN model

Reference Material:

- Reference:
    - https://westergaard.eu/2010/07/cpn-simulation-in-prom/
    - Discovering simulation models
        - A. Rozinat, R.S. Mans, M. Song, and W.M.P. van der Aalst *International Journal on Software Tools for Technology Transfer (STTT), Volume 10, Number 1, Pages 57-74*
    - http://cpntools.org/
- Youtube video on how to use PRoM plugin:
    - https://www.youtube.com/watch?v=T31sLvfQD0E&feature=youtu.be
- PRoM Package
    - For idea (accepting CPN model from CPN tools)
        - https://svn.win.tue.nl/repos/prom/Packages/CPNet
- Technical aspects:
    - Coding in Python using pm4py as the basic
    - Expectations:
        - Getting the algorithm/logic is important.
        - Generating simulated event logs which follow the real process
    - Do not reinvent the wheel. Use the existing pm4py for the steps that you need.