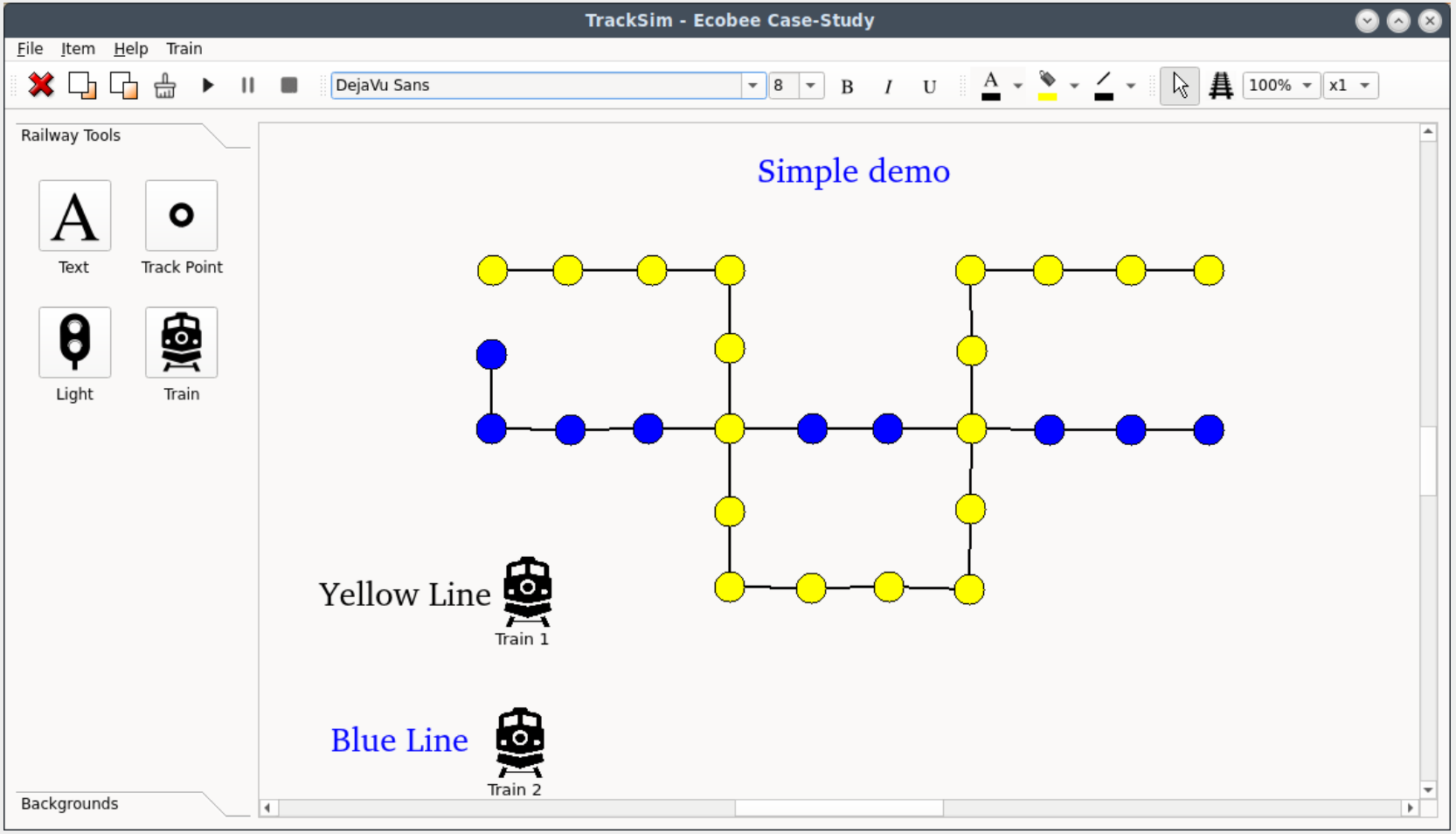
TrackSim – Railway Simulator

About

- Provides a framework for building a Railway simulator
- Main Features
  - **Railway Editor**: friendly UI for adding/modifying railway components such as: TrackPoints, Segments, Trains, Routes and texts
  - **Scripting Simulator**: the actual simulation is written in Python scripts. Framework provides easy interface between python and UI in runtime.

TrackSim UI


TrackSim - Ecobee Case-Study
File
Item
Help
Train
DejaVu Sans
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Railway Tools
Text
Track Point
Light
Train
Backgrounds
Simple demo
Yellow Line
Train 1
Blue Line
Train 2

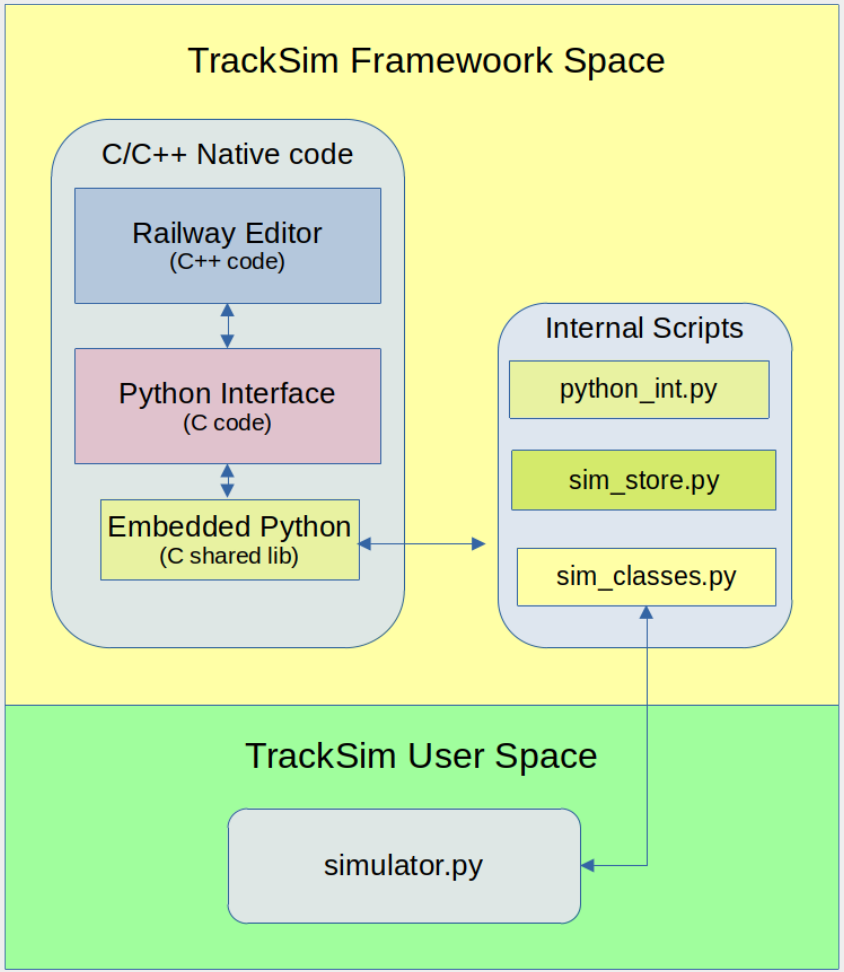
UI Controls

- Add/Move/Delete: TrackPoints, Segments, Trains and Text
- Create routes for trains
- Set colour for most components: TrackPoint, Segments and Texts
- Set view grid and zoom
- Save/Load railways in JSON format
- Launch Simulation
- Dynamic interactions with simulator: toggle light signals
- Control Simulation: pause, stop and speed

Demo Time

- Editing
- Save/restore
- Run test.rlw
  - Pause
  - Manual signal toggle
  - Speed change
  - Route change Yellow termination/collision
- Run collision.rlw (reverse route)
- Show flexibility: run blink

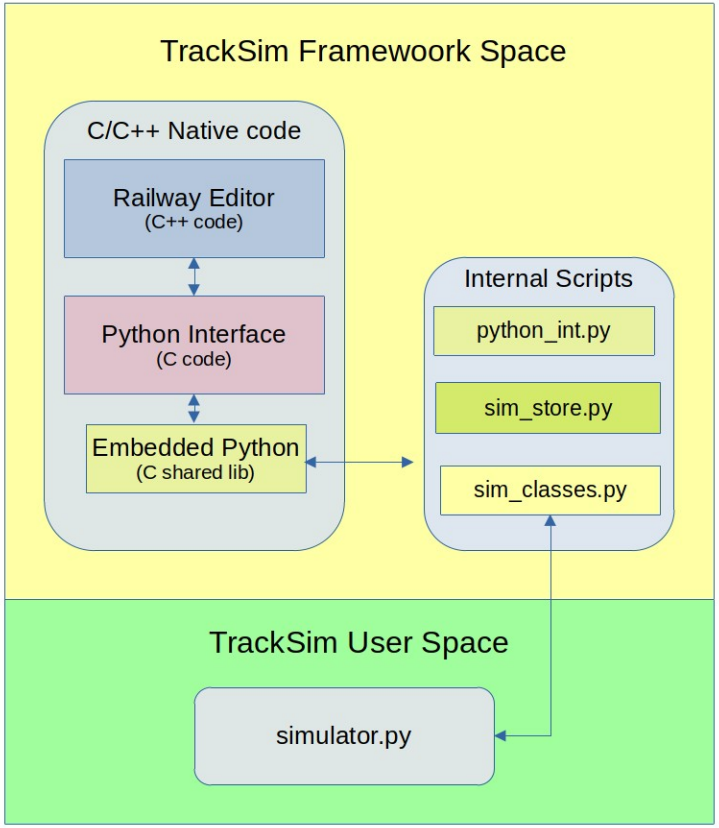
TrackSim Architecture



Directory Structure

tracksim
(except python lib)

Also under tracksim:
images: resources
docs: doc files
htmp: auto-generated
by Doxygen



tracksim/python_int

tracksim/simulator

Minimum (void) Simulator Implementation

```
import sim_classes

simRunner = None    # optional object to hold railway components

##### Optional class
class SimRunner:
  def __init__(self, trains, segments, tracks):
                self.trains = trains
                self.segments = segments
                self.tracks = tracks
                self.tick_counter = 0
                self.blink_on = False

##### Mandatory function
def sim_start(trains, segments, tracks):
  global simRunner
  simRunner = SimRunner(trains, segments, tracks)  # creation of optional object to hold railway components
  return 1

##### Mandatory function
def timer_tick():
  global simRunner    # optional object to hold railway components
  pass
```

Project location

- Location:
  - https://github.com/mvaranda/tracksim
- Build/Run: in github main page, or:
  - https://github.com/mvaranda/tracksim/blob/main/README.md
- Auto-generate documentation for code:
  - Run doxygen in a bash under tracksim directory.
    - To install doxygen (Debian/Ubuntu):
      - Sudo apt install doxygen

Q&A

- Live Q&A
- Further questions: please send your question to m@varanda.ca