TRIP Planner Model

Eclipse Modelling Project Report

- Supervised by

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ABSTRACT

To understand the modelling operation of a Trip Management based on Eclipse Modelling Framework and able to create a multiservice trip with ability to calculate cost, as well as validate keeping up the consistency.
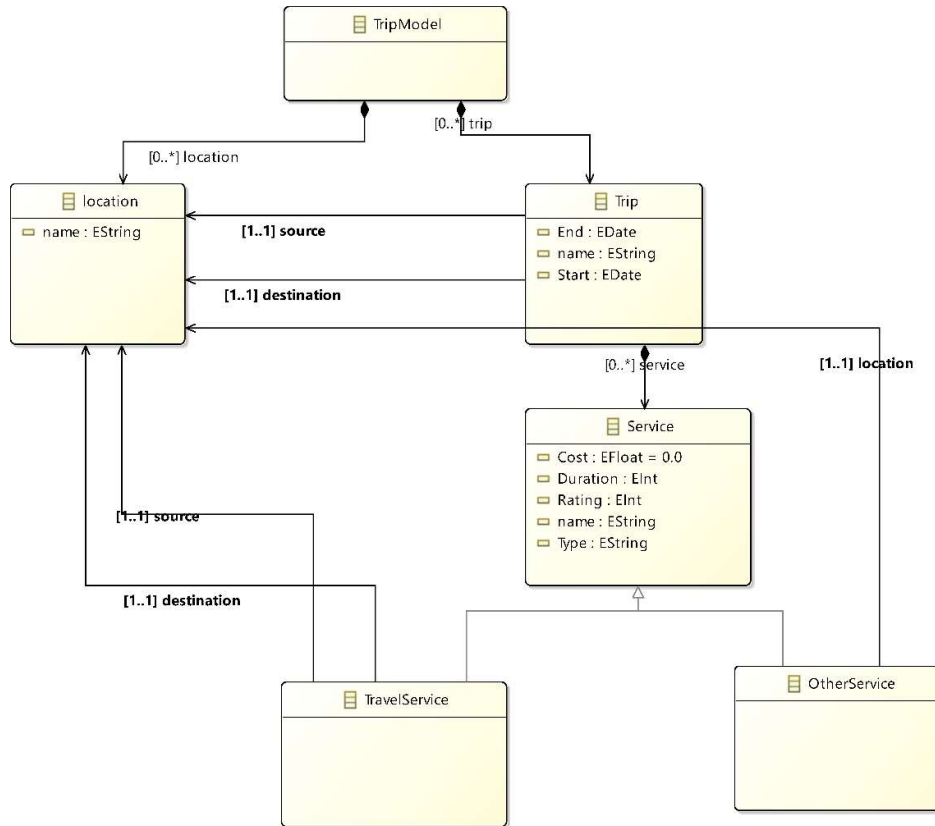
Submitted by:

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&

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Modelling Syntaxes Overview:

## Meta Model of Trip:

Overview:

1) TripModel is our main root reference from which we are able to create multiple trips with each trip containing a list of services as superclass extended by TravelService Class and OtherService Class.
2) Here a constraint is placed on the validity of locations which is associated with a trip referenced by a trip as well as each of the services
3) Also reusability of Service class is achieved by placing it as a superclass extended by Travel Service Class for travel operations and Other Service Class for other operations such as hotel,sightseeing which do not depend on source and destination but just location.

Concrete Representation:
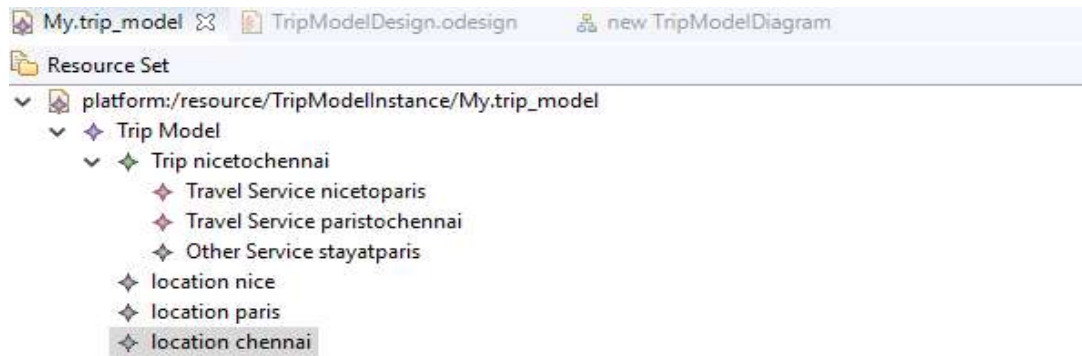
Overview:

1) A concrete model of the above model was created after generating the required artifacts in the runtime instance of the eclipse application emf trip model created earlier.

2) This was a combination of a travel as well as other service,multicity trip and which was validated.

XML Text of Gen Model:

Overview:

1) Gen Model file representation in XML format for the Trip Planner.
2) It contains the xml representation of various ecore classes generated as a result of the meta model also as well as the attributes representation

Textual Syntax: Xtext

```
TripModel{
    trip{
        Trip "nicetochennai"
                {
                        End 25-05-2018 Start 23-05-2018 source "nice" destination "chennai"
                    service
                    {
                        TravelService "nicetoparis"{Cost 800.0 Duration 1 Rating 1 source "nice" destination "paris"},
                        TravelService "paristochennai" {Cost 540.0 Duration 1 Rating 1 source "paris" destination "chennai"},
                        OtherService "stayatparis" {Cost 800.0 Duration 1 Rating 2 location"paris"}
                    }
                }
        }
        location{
                location "nice",location "paris",location "chennai"
            }
        }|
```

Overview:

1) Xtext was generated to give a textual syntax orientation for the model which is represented above with allowing a consistent trip.
2) Xtext had some modifications done to parse Edate which was a custom implementation done as part of this project
3) The textual syntax was allowed only for valid location because of the model created
4) Xtext format extension was created to be **.tripxt**

Graphical Model: Sirius
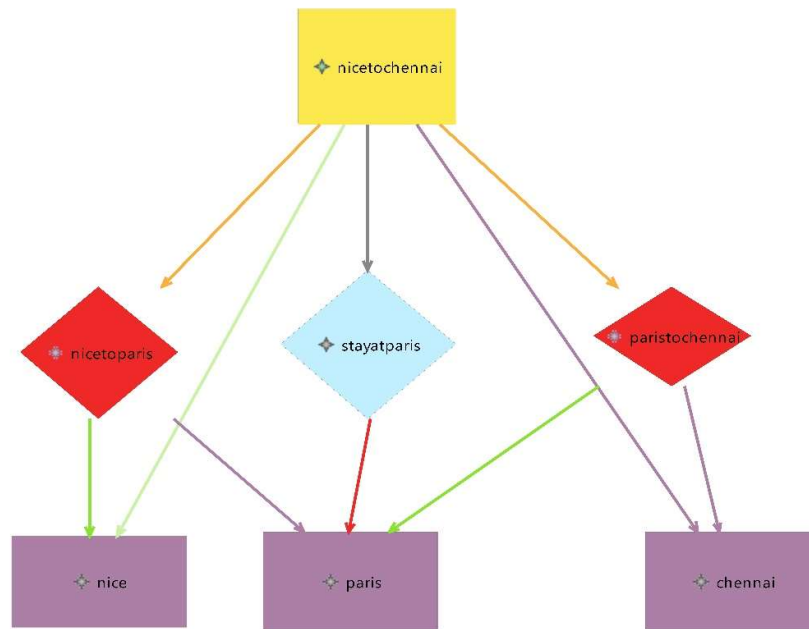
Overview:

1) Sirius representation was a more graphical representation containing the view point specification based on the model instance created earlier.
2) Here green edges represent the source and the purple ones represent the destination.
3) Also Services pointing to a trip are referenced with orange edges
4) Other Services are referenced by a blue diamond box and travel services are referenced by a red diamond box.

Plugin Creation:
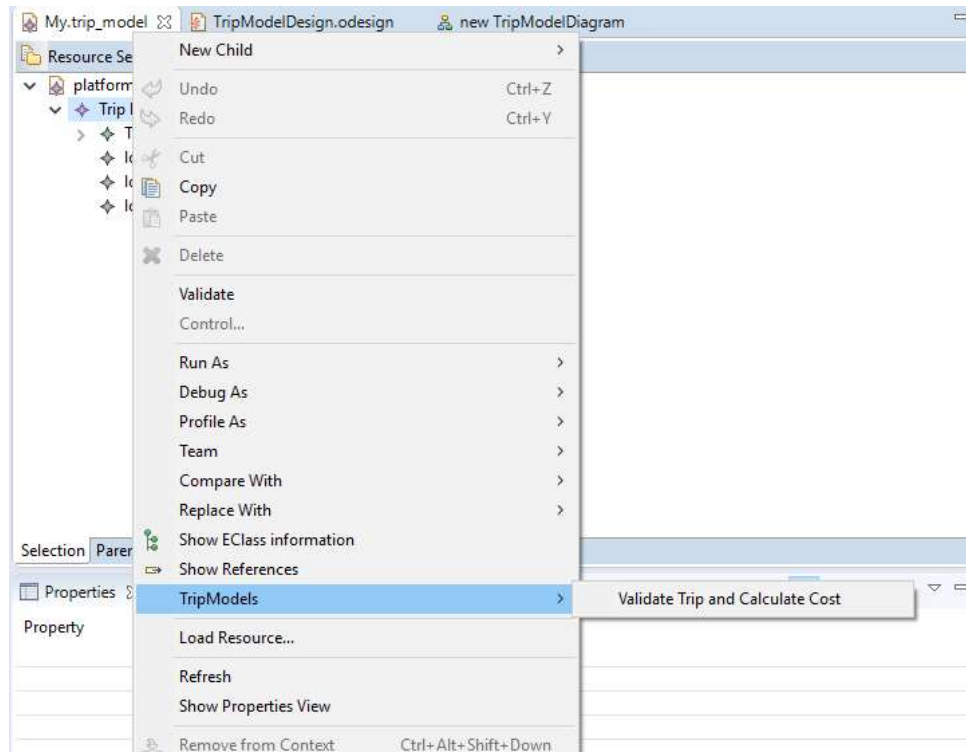
Overview:

1) Here a plugin is created for validating a trip and calculating cost both simultaneously and then presented to the user,with appropriate validation though the use of popup widget.

Validation:

1) Validation of a trip is done by the plugin part where the selected structure instance is retrieved of trip and services and further validated.
2) Consistency validation with respect to dates and source destination check are maintained.
3) Implementations are contained in the TripModelHandler.java which validates whether a trip is valid or not.
4) A trip is checked for its validity and simultaneously its associated services which is a more generic check like in the android implementation.
5) A sample validation screenshot is presented is presented for both validation and non-valid cases where a more specific validity error is presented to the user of the p

Cost Calculation:

My.trip_model ⊠   TripModelDesign.odesign   new TripModelDiagram   TripModelXT.tripxt

Resource Set

- platform:/resource/TripModelInstance/My.trip_model
  - Trip Model
    - Trip nicetochennai
      - Travel Service nicetoparis
      - Travel Service paristochennai
      - Other Service stayatparis
    - location nice
    - location paris
    - location chennai

Message   ✕

ⓘ   Valid Trip Cost is:2140.0

OK

My.trip_model ⊠   TripModelDesign.odesign   new TripModelDiagram

Resource Set

- platform:/resource/TripModelInstance/My.trip_model
  - Trip Model
    - Trip nicetochennai
      - Travel Service nicetoparis
      - Travel Service paristochennai
      - Other Service stayatparis
    - location nice
    - location paris
    - location chennai

Message   ✕

ⓘ   Invalid Trip due to: Failed Service! Since Location is emptyCost is:2140.0

OK