Design

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Explain the changes if you use a different design compared to your assignment 1

In assignment2, we do a lot of change with our assignment 1.

At first, we change the relation container, at assignment 1, we use ArrayList to store relation, in assignment 2, we use HashMap to store the relation, this is means that when we need to find out 2 peoples relation, the HashMap can directly to show the type of relation. We also change the Class design, we create a Relation Class to show and store the relations, not like assignment 1 we do not have Relation Class that we put all relation in Person Class and to use Driver Class to opera relation ArrayList. About relation, we also decrease the coupling degree of our Driver Class, we add the method addRelation() in person class, the Driver Class just call those method to implement addRelation.

Secondly, the one thing we want to mention is the Dijkstra algorithm, when we considered how to calculate the shortest route between two people, we did some research and find the Dijkstra algorithm. To change this method to java, at first, we put first person to the ArrayList then find out his relation and add those people to the ArrayList step by step. In the last, the system will find the shortest route between first person and second person.

Thirdly, we create a Controller Class to active our GUI. We use scene builder to create the application. The one problem of scene builder is when we need do the action, we need create new page of the application, so we hold a console to show the result of select or shortest route.

The io is also different to assignment 1, we try to use our txt to be a database, when finishing add new person function, add new person method will call the WriteData calss that there is a writeData method that use bufferedWriter to store the person profile into person.txt. The relation is a little bit different to person writer. We create

the method call writerRelationDate that call all people hashMap named miniNet<String,person>, then ergodicing all person relation table which store in the HashMap relation, then we use BufferedWriter to write relation into relation.txt.

Explain how the new classes are organized

We have 4 part of our assignment, io, jdbc, exceptions, application.
The application contain class Person which a abstract class and Adult, Child,. YoungChild, extends to Person. The Controller is the class to create GUI and create action of functions. The Driver Class is to calculate the shortest route between 2 people. The MiniNet class contains main function.

The exception parts store all the exceptions. It contains NotAvailableException, NoParentException, NoSuchAgeException, NotToBeClassmateException, NotToBeColleagueException, NotToBeCoupleException, NotToBeFriendException, NoVaildInputException, SameNameException，TooYoungException.

We implement io to create one class neamed RWFileData. In this data, there are 4 method to implement write and read function, this class also create two files to store person and relation.

The REDataBase is the calssSSS to make a connect to HyperSQL, The ConnectSever contains connectServer function which can start sever and close sever, and it also contains createTable and insertData function.

By conclusion, our design is based on controller and driver, controller make the action between GUI and backend, driver is show the console and result to user.

The Person Class is the abstract calss, and the Adult, Child and YoungChild extend inherit the Person class to confine the different type of person, and different objects will implement different relation form controller, we use this method to control the relation strain.

Explain the process by which your program will interact with user and external data source to run a game.

There are two ways to interact with user, the first way is GUI which call the controller to finish interactive action, user click bottom to trigger event, then the system will call the method to give the feed back to user. The second way to interact user is the console, we keep the console in the GUI, the console show in the bottom of the interface, the console can show the feedback and result of user action, like search person and show the shortest route. The console is called by the Driver Class which can calculate the shortest route between 2 people and list all people.

Actually, we use the java object database to store date, like we store people in the HashMap, we store relation also in the HashMap, and most of the method is call the HashMap or person object. However, we store our data into the HyperSQL and txt file. We do not read the data from the txt, because the txt is not a steady container, and the HyperSQL we still need do more study to do the interact with database. At this stage, we just store the data into those two container.

We create a GUI by scene builder, at first, we set 5 button in the index of our application, when the user choose one button, the all page will be reflush and the next step will be shown. For example, the user want to list every one in the system, when the user click the buttom, the system will reflush and call the method list everyone from Dirver and show the result of the events.

Class diagram