MAS Project Documentation (s19239)

Ted Conference application

Current Project is not part of the TED conference organization, and doesn't apply to it, used only as a student project idea and the situation is imaginary.

Description:

Ted(conferences) -is an American media organization that posts talks online for free distribution under the slogan "ideas worth spreading". The conferences are held in different cities and on different topics. Due to Covid-19 number of conferences held significantly decreased, and they plan to organize a lot of conferences after the pandemic is over, but they don't have appropriate application. Ted wants to deploy new application that will give the opportunity to make a reservation (buy a ticket to the conference).

User requirements:

1. The application has a functionality to view and search the facilities where the conferences are held, containing information about the facility, location, and capacity.
2. The facilities have one or more conference halls, with certain number of seats, and category (small, medium, large).
3. Seats has their unique numbers and are categorized Regular, Front (seats which are close to the stage) The prices depend on the type of the seat.
4. The conference is described by the title, duration (in minutes), speakers, language, description, date, topics and sometimes the company (Ted sometimes partners with the company and organize the conference together). The user should be able to search the conference by the topics and title.
5. The conferences are held in sessions. The sessions with the start date time and end date time. More than one session could be organised in one day. The user should be able to choose from the list.
6. The users should be able to buy tickets to the conference in the system and be able to choose from the list the conference the seat and the session. If there is no available seats the user will be informed that there is no available tickets for this conference.
7. The purchases of the user will be stored in the history with the date of purchase and the reference to the conference, the price which is vary for users' membership in TED community. It gives the discount to users with Ted membership. The users are also able to get a discount if they are

student or a pensioner or disabled person, the amount is varied between the groups.

8. The profile page of the user contains users' name, phone number, email, username and password and information regarding the membership and the discounts that the membership provides.
9. Three types of users that are present in the system, non-member, regular member, VIP member. Members get points for purchasing the tickets, that could be used in later purchases as a discount. VIP members additionally have a 5% discount on any purchase, but to become a VIP member the user should have in history at least 20 purchases made. The user can sign to be a regular member by a few clicks or resign from it.
10. The Customer support Is present to help customers. The support is available by phone call or email address, to get the discount (student, pensioner, disabled) the user should send an email to the customer support with the request and confirmation (certificate that proofs it) further the information will be stored, and the user doesn't need to contact the support each time, the discount will be applied automatically.
11. Customer Support Operators are people that respond to users and help with the issues, the system stores information regarding the name, email, phone number, languages. The requests are assigned by the system if the operator is currently working and available.

The users should be able to do:

Register, Log in , Log out,

View list of the conferences

View the facility of the conference

Search conference by title

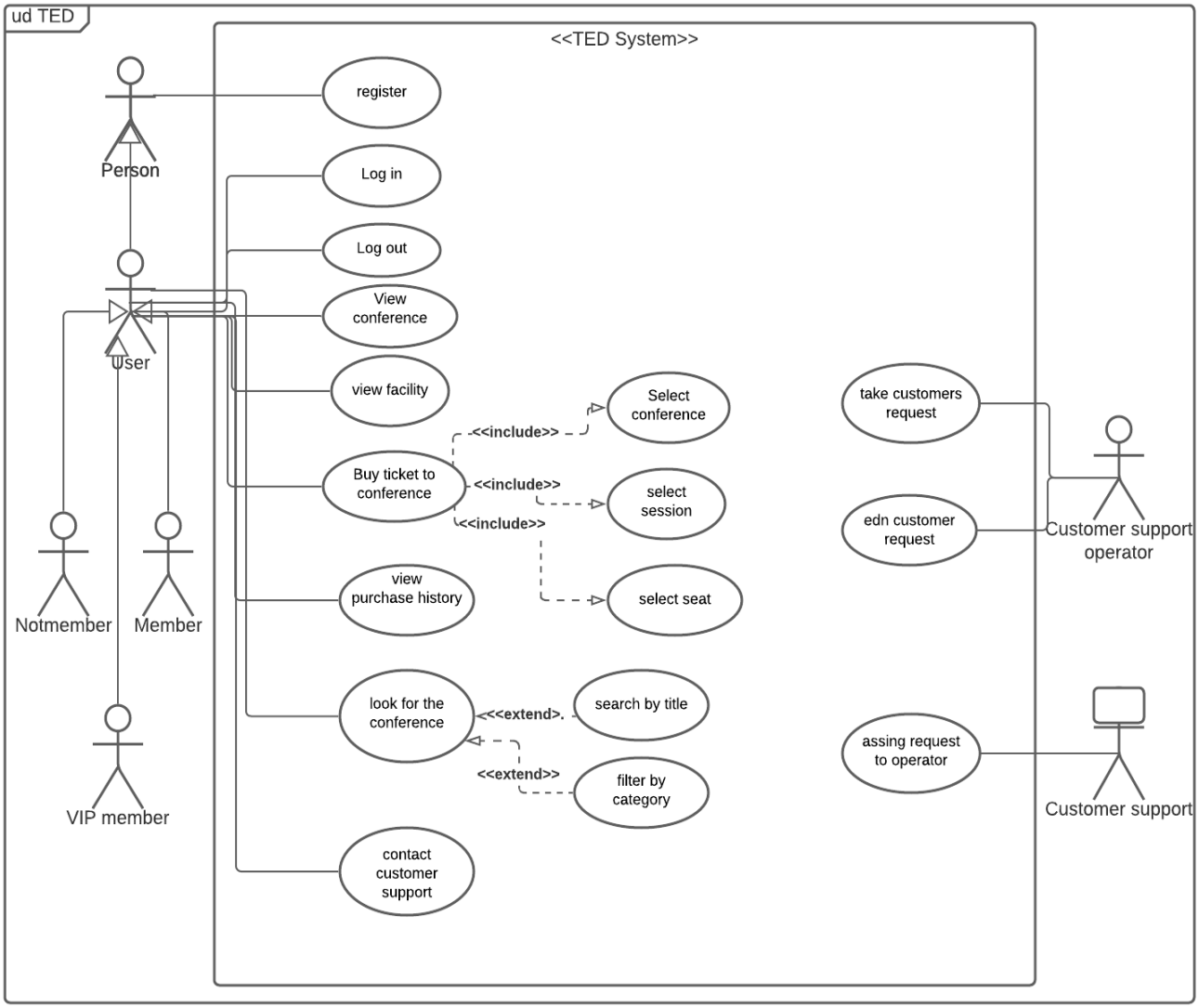
Filter conferences by topics

Buy ticket to the previously chosen conference and session and seat

View Profile page

View purchase history

Use case diagram TED application:



List of actors in the system:

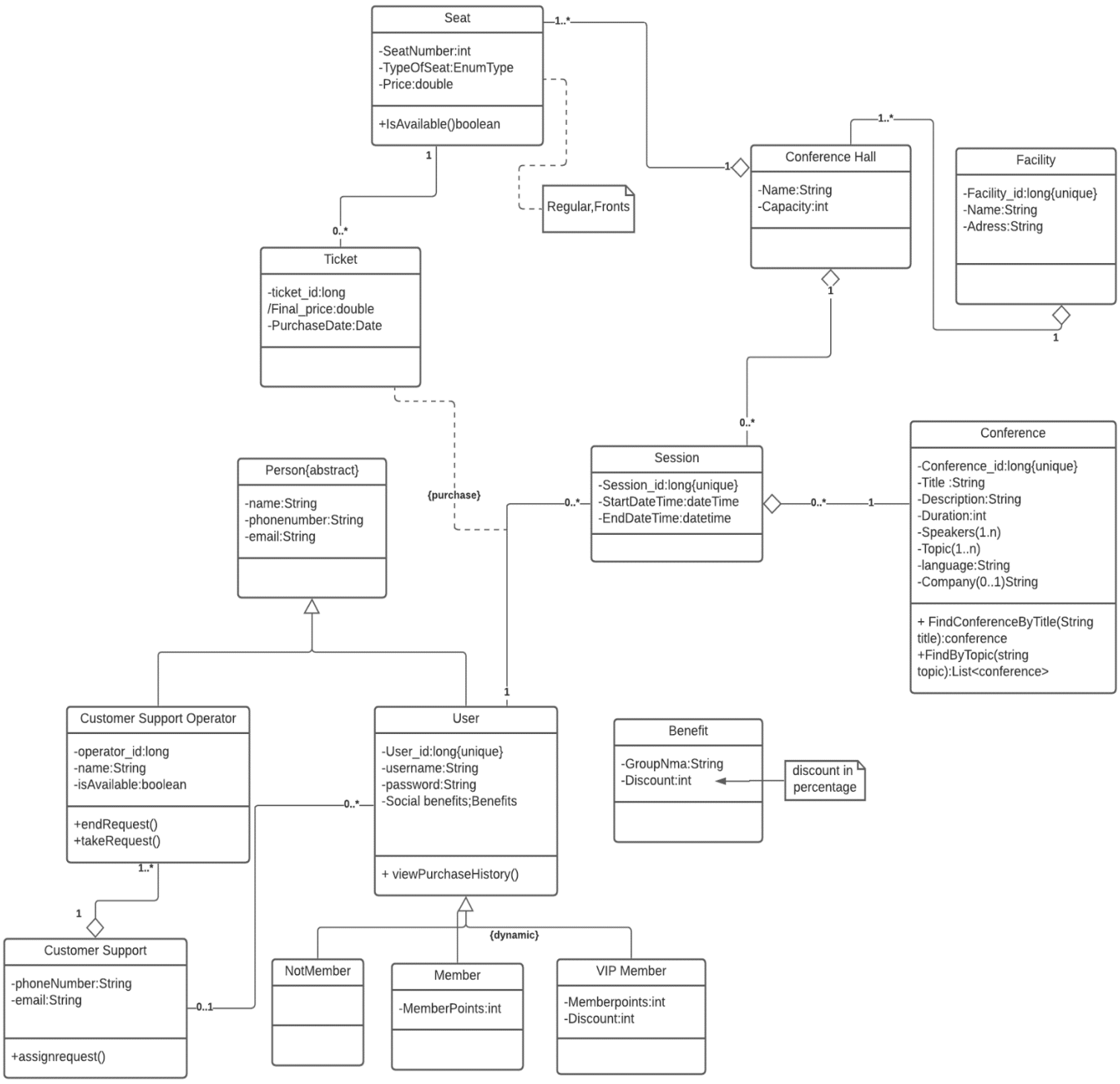
Person : not registered user.

User : registered person that can buy ticket to the conference , previously chosen by user.

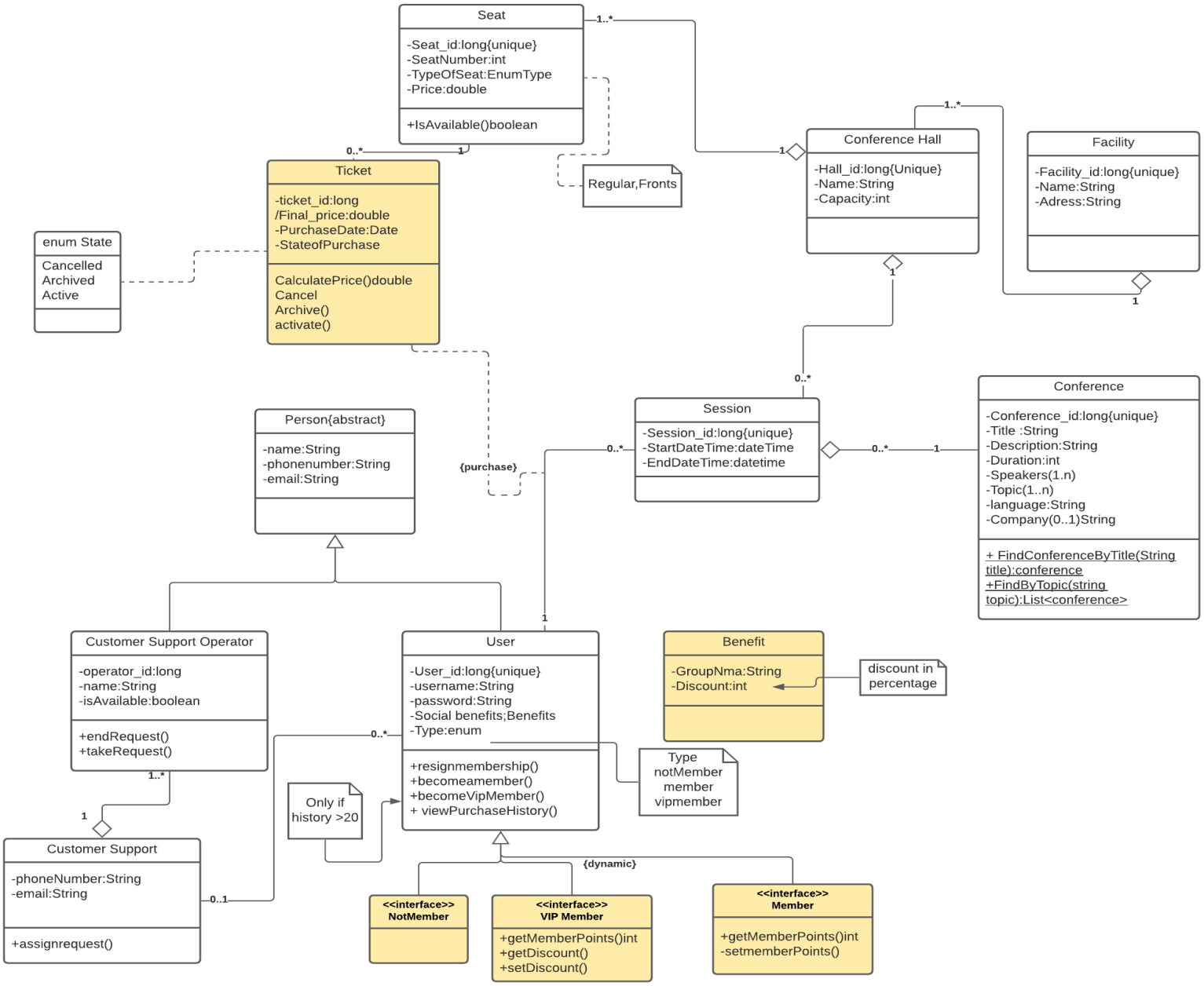
Not Member , Member , VIP Member : three type of users with different benefits.

Customer Support Operator : TED worker that accepts the requests from the users.

Analytical Class Diagram:



Final Class Diagram for TED app:



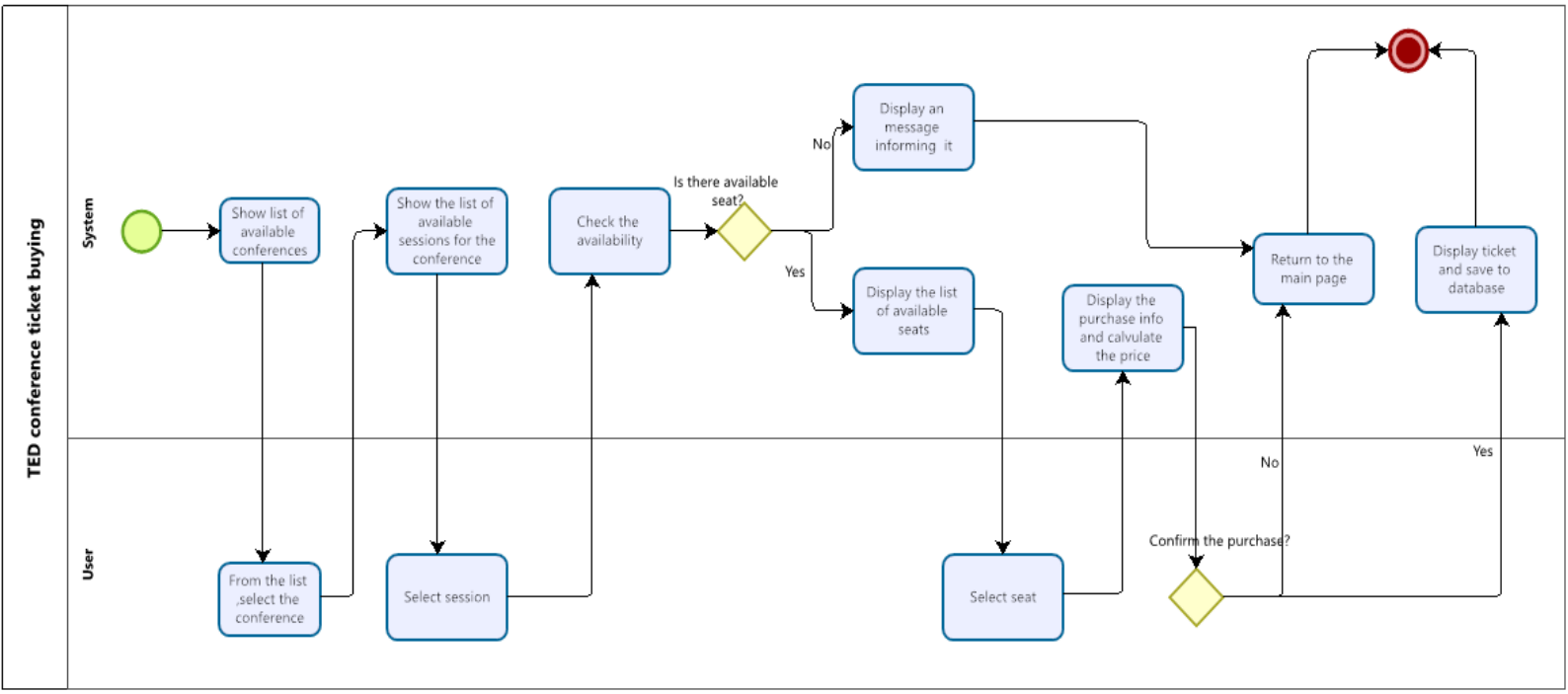
Ted is the conference organization that wants to deploy application to give their customers opportunity to buy tickets to the chosen conference and session in application.

Use-case scenario:

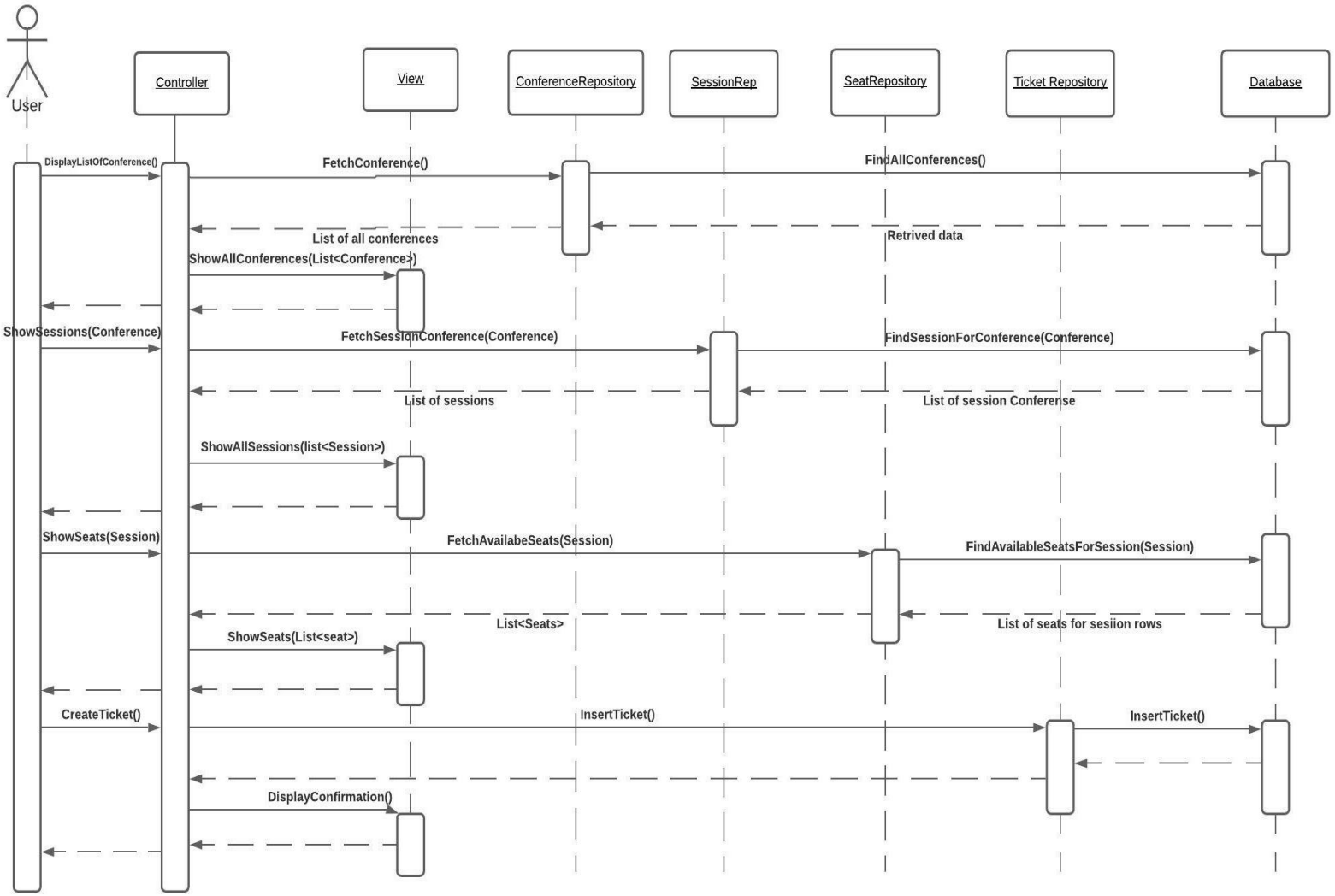
Buy a ticket to the conference:

From main page the user should select “Buy ticket”. Then the user should choose the conference he wants to visit ,then the session .The sessions contains information about the location time and duration of the conference. From the list the user should choose the one that he wants to visit. Then the user should choose the seat from the list of available seats ,in case there no seats the user will be informed that there are no places. The System calculates the final price of purchase considering the membership and social benefits. Then the confirmation pop up window displays all the information about the purchase(Conference ,facility , price, time, location)The user should confirm the purchase to be made or can cancel the purchase and will be redirected to the main page.

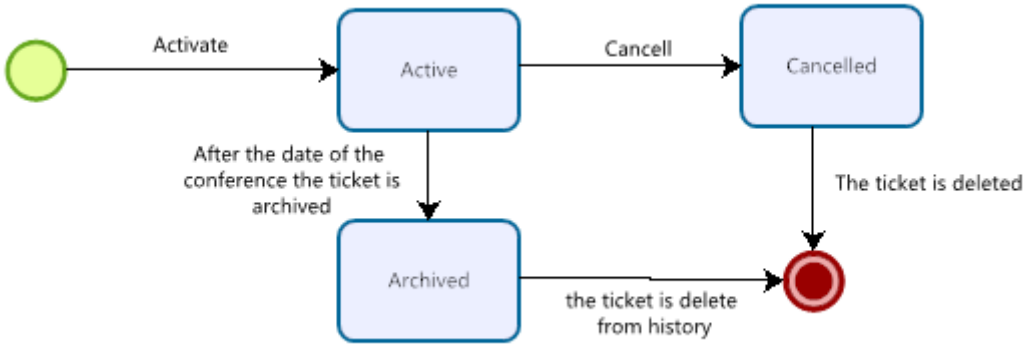
Activity diagram for Buy a ticket Use Case:



Sequence diagram for buying ticket use case:

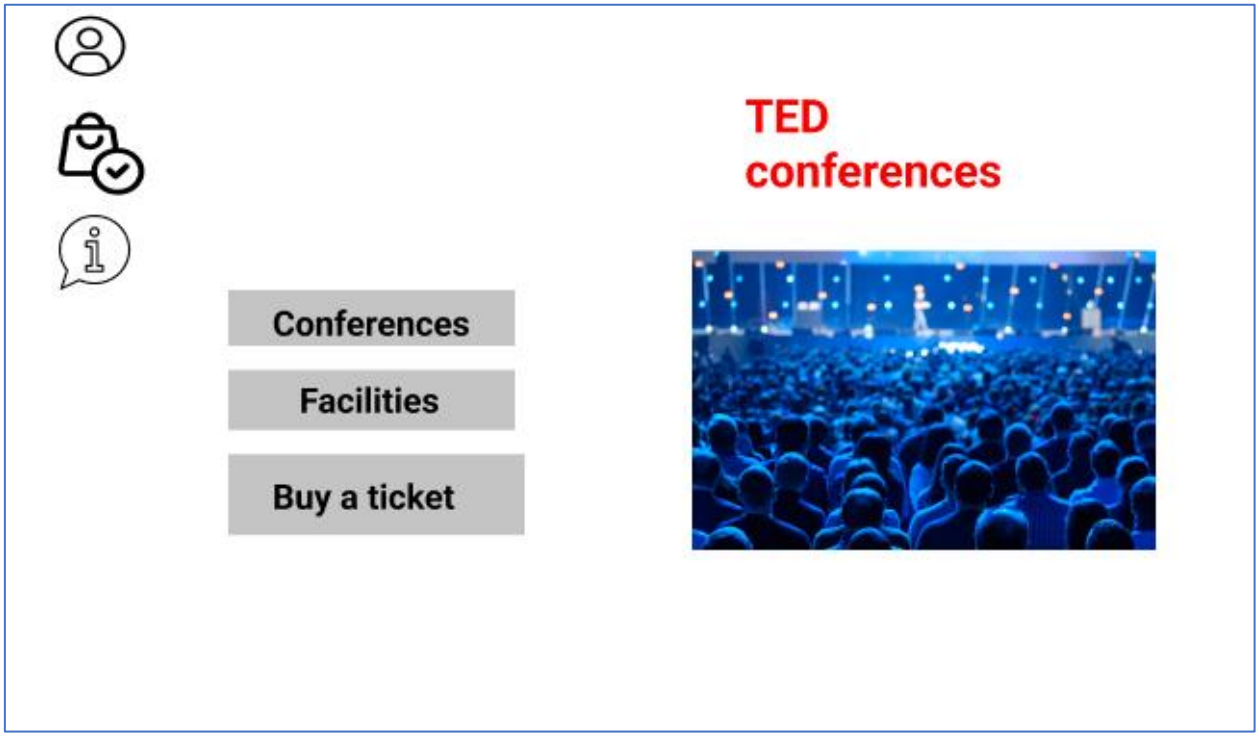


State diagram for class ticket



GUI design for use case :buy ticket to the conference

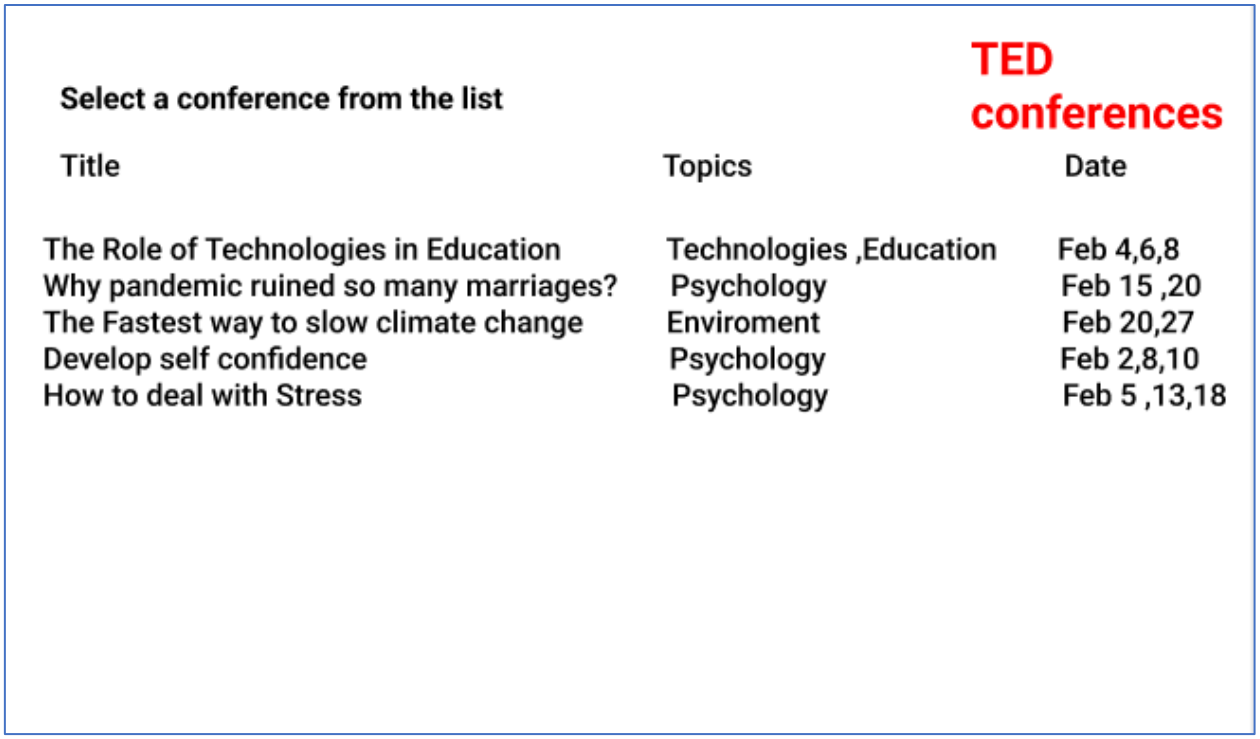
The use case starts when the user selects to buy a ticket. Then page with the list of conferences (title, topics, dates) opens, the user should select one of them. After that page with sessions to the given conferences opens and the user should choose the one that he wants ,if there are places available to this session page for choosing a seat will open(the picture only shows the placement of the seats and is not interactive), if not the user will be informed that there are no places. The purchase confirmation with all the regarding information (conference, dates, location , price)The user can either confirm or cancel it.



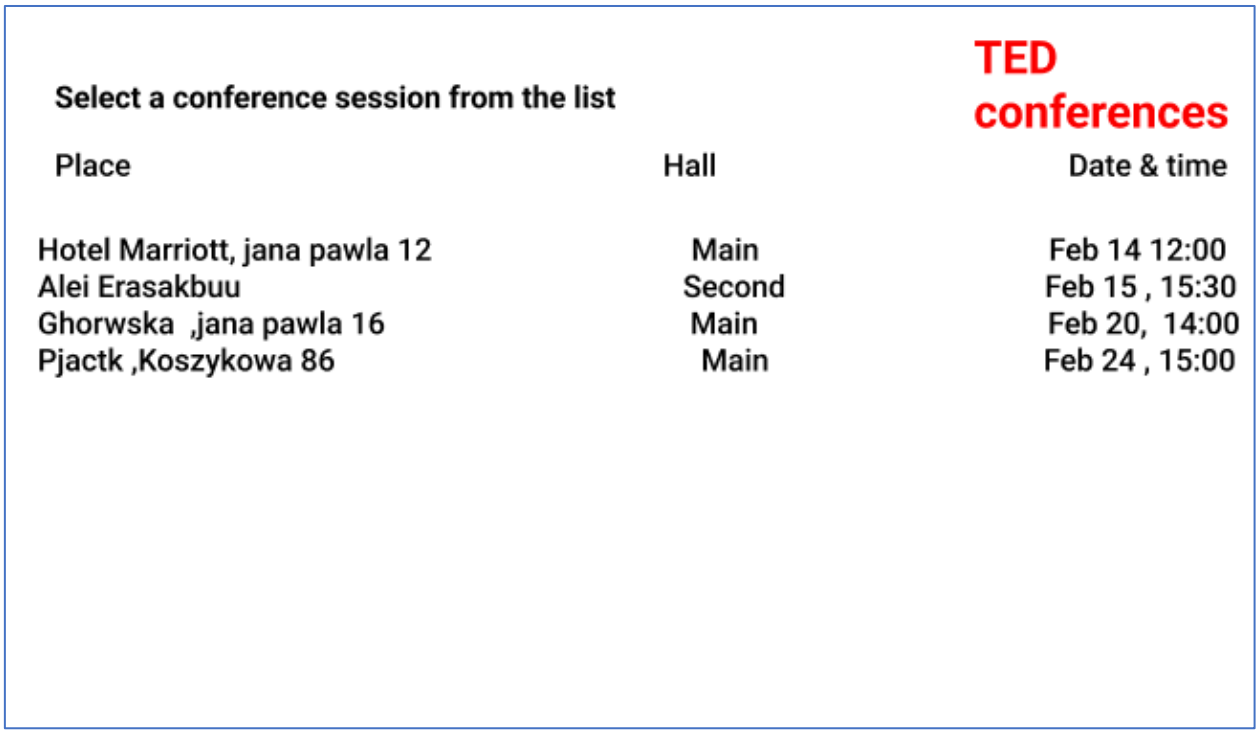
Main Page contains:

Logo, Picture, Profile, Purchase History ,Customer support.

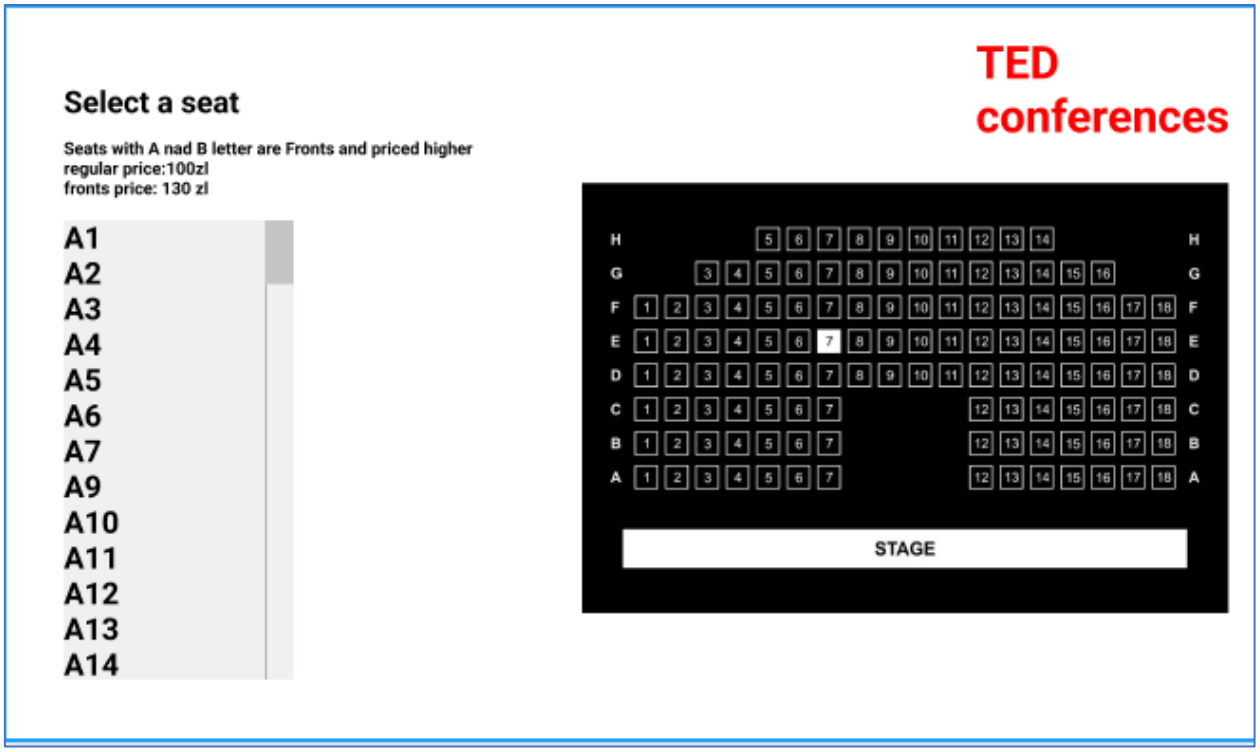
Conference selection page ,contains title ,topics and the dates the conferences are held

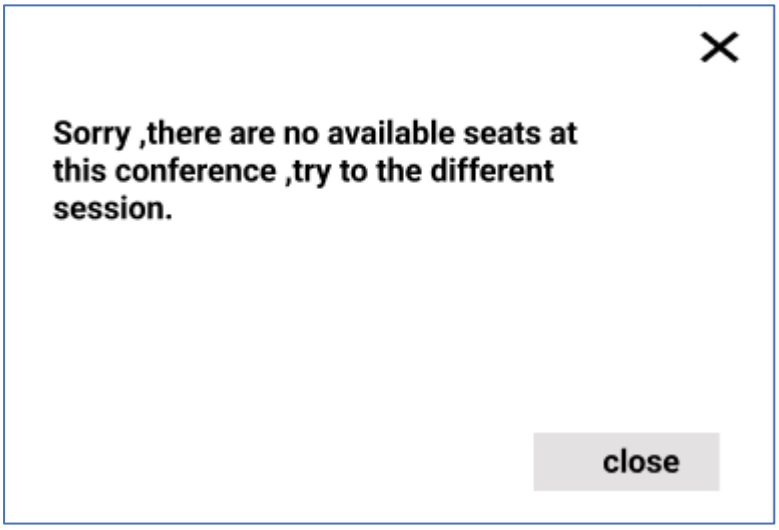


Page for selecting the session ,containing info about the place ,hall date and time



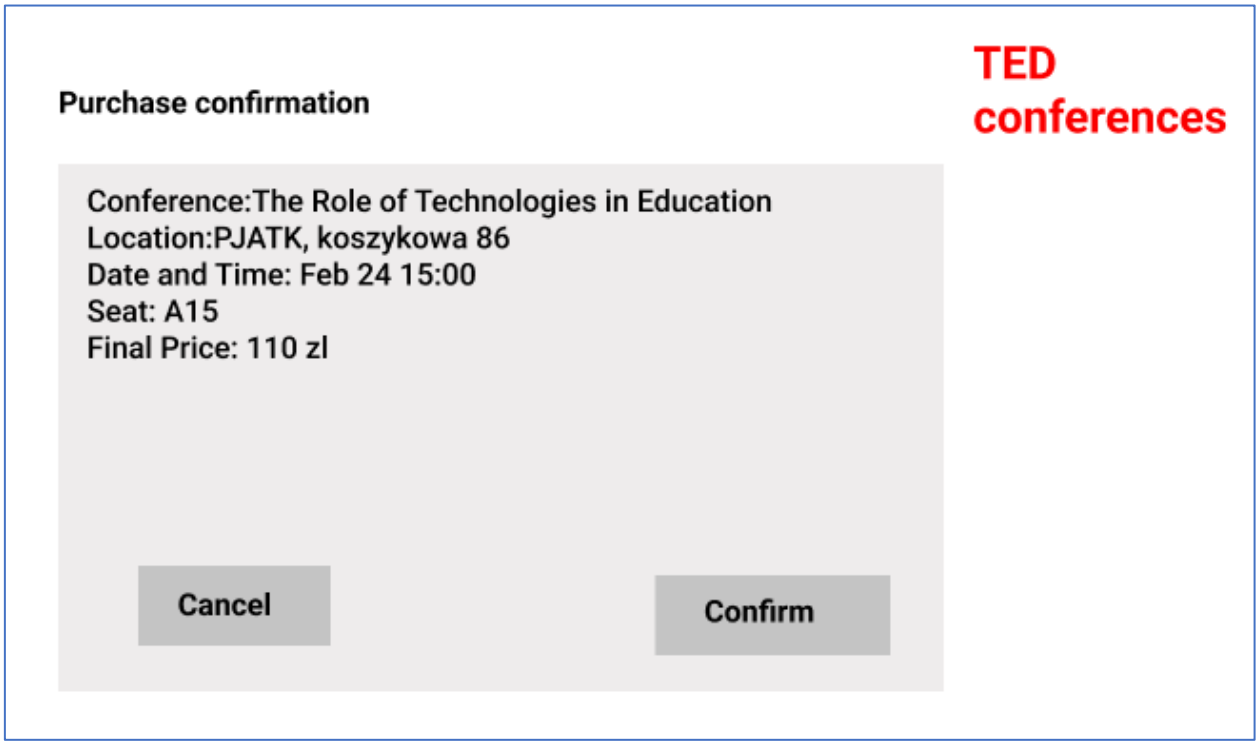
Page where users select the seat ,the picture is not interactive , only used to show the placement of the seats. On the left side the user chooses the seat.





if there are no available seats at the previously chosen session then this message occurs.

The purchase is ready the user should choose to confirm and the purchase will be made or can cancel.



Discussion of the design decisions and the effects of dynamic analysis.

During the design stage decisions below were taken

1. Adding a separate class Benefit. The users are given this social benefits after confirming it by email .The user sends certificate confirming it. Groups that get social benefits are Students, Pensioners, Disabled people. The class contains attributes Group Name String(for example Student) , discount is the int number ,represents the percentage discount that the user has.
2. The States for the Tickets were added to identify the state of the ticket ,Active ,Cancelled , Archived (refers to tickets purchased before, the conference is over)
3. At early stage of the design different type of users were added: Nonmember, Member, VIP Member. The membership gives users the opportunity to get points for buying the ticket .And they will get discount from those points for next tickets they buy in the system. User can become a member at any point .VIP Member gets additional discount but to become one the user needs in history more than 20 tickets purchased. The Implementation of will be done as dynamic inheritance.

4. The User class will implement three interfaces with their methods. Attribute Type(enum) added to identify the user type (membership) refers to. The methods to become a member were added. Before becoming a VIP member the system will check if the user has in history 20 purchases made.
5. Derived attribute FinalPrice will be implemented as a method that calculates the total price taking into account the discounts the user has.
6. The getters and setters were not presented in the diagram to keep it readable.

PJATK s19239 Aliia Baimuratova MAS online

List of Tools that were used and links to the diagrams:

Class diagram: https://lucid.app/lucidchart/ff50f133-769e-47bd-b695-6724e4a94997/edit?invitationId=inv_5deb1870-316c-43f1-b509-1f79fefc1ea2

Sequence: https://lucid.app/lucidchart/64572e55-d2ac-44f2-897d-92b15baab67e/edit?invitationId=inv_21955a6f-8143-4093-9a83-a93fc7074abb

Tools: Lucidchart ,Bizagi Modeler.