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**Software Design project doc**

A screenshot of a computer program

Description automatically generated

The student class has the private fields (with getters and setters): id, name, address, and the grup of type “Grupuri” which represents the foreign key to the group the student belongs to, thus making a one to many relationship between student entity and group entity (one group has many students; each student belongs to one group).

A screen shot of a computer program

Description automatically generated

Above are some methods present in the GroupControllerClass which handle specific url and database management. A group can be deleted by accessing the /deleteGroup/{id} where id is an integer of the group id to be deleted. The /updateGroup url receives a GroupDTO in to handle the update of a group. The group to be updated is the one of the given id and all the other elements are given in the body as a JSON.

A screen shot of a computer program

Description automatically generated

The studentDTO Class is used in order to transfer objects in case the input is wrong or not valid, or if the input must not all be specified (for example in case the student does not want to specify it’s address then a default one is given).

***UML DIAGRAM***

A paper with writing on it

Description automatically generated

A screenshot of a computer program

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The user class specifies a user which can have 2 roles (the one of the typical user which has access to some commands, and the ADMIN which has access to more urls, examepls being that an ADMIN can see all the groups or students in a database).

A computer screen shot of a program

Description automatically generated

The above function is the one that generates a token for each login/signup attempt; the token is valid for 24 hours and uses the current time as the issued time. It encrypts all passwords.

A screen shot of a computer program

Description automatically generated

Above is the register and authenticate methods which handle the functionality of their respective name. The register method also checks that each email it receives is a valid email and that the names are only letters (in the English alphabet, not Romanian alphabet).

A screen shot of a computer

Description automatically generated

The securityFilterChain is the method responsible for giving the access to each user to only their respective functions. For example, “/getAllStudent” and “/getAllGroup” is only allowed by ADMIN users, any url that begins with “/api/v1/auth” is allowed by anyone (these are the register and authenticate urls) (the “/\*\*” is the part that specifies any url that starts with this path). Any other urls are allowed only by authenticated users that specify a VALID token.

**Use-Case diagram**

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