SAS-R PROJET DU 17 OCTOBRE 2025 – LINKEDIN-LIKE

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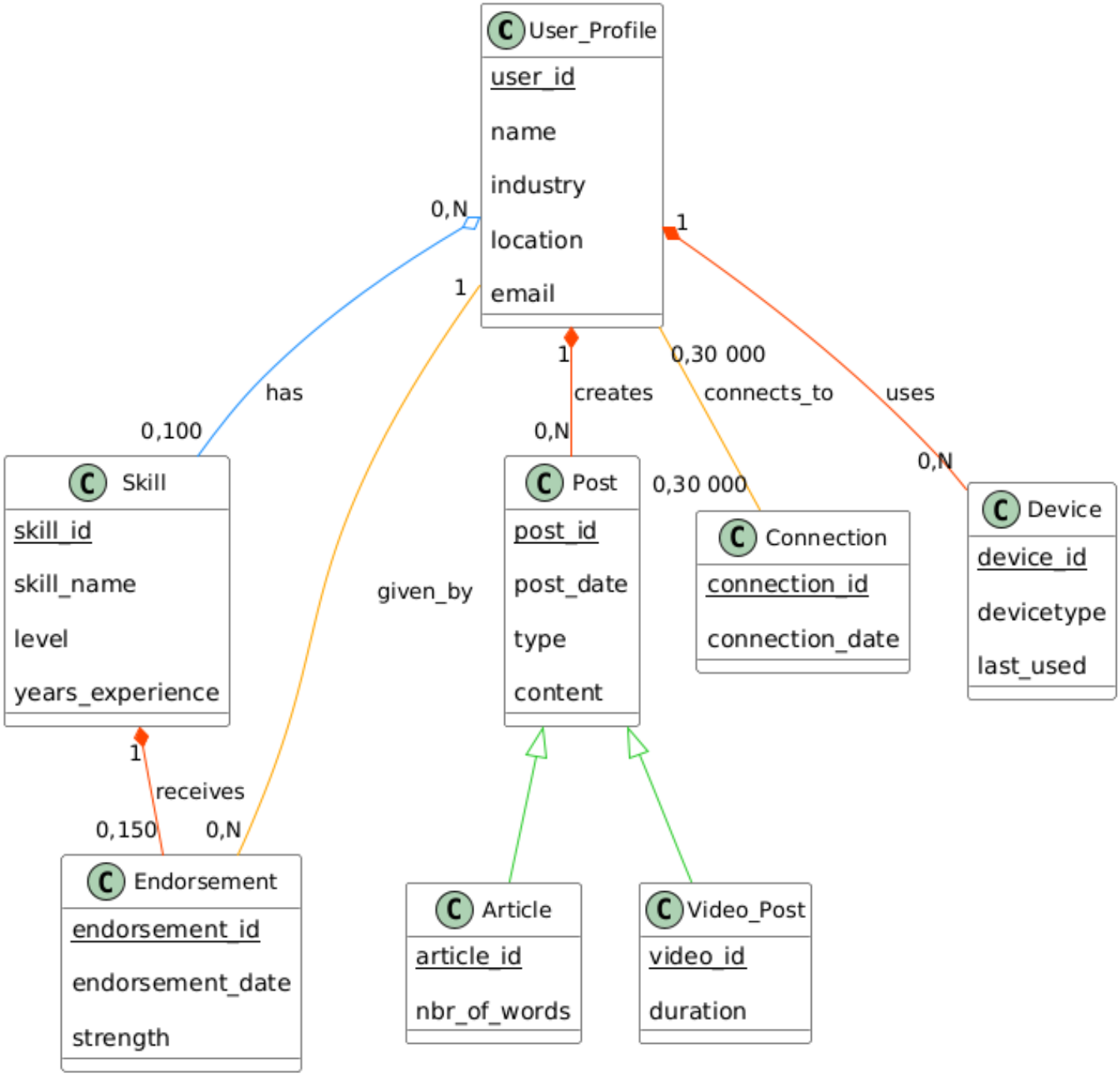
DATA MODEL BUILD



EXPLANATION OF THE KEY DECISION WITH REGARD TO THE MODELLING

Our group chose the LinkedIn-like business model

Our hypotheses:

- Each user has a LinkedIn account, represented by the class User_Profile. Each profile is identified by a unique user_id, which serves as the primary key of the class.
- Skill is a shared concept that can be linked to multiple users. Each user profile may contain from 0 up to 100 skills, which corresponds to the maximum number of skills allowed on a LinkedIn profile. Several users can have the same skill with the same experience level.
- Endorsement depends on both the skill and the user who gives it. Each skill on a user profile can receive up to 150 endorsements from other users, or none at all. A user can give an unlimited number of endorsements. Each endorsement is unique, as it is given by one specific user to another user's specific skill.
  If someone who endorsed a skill deletes their account, their endorsement doesn't disappear. The system removes or hides the link to the person who gave it, but the skill still keeps the endorsement.
- On LinkedIn, each user can publish as many posts as they want. These posts can appear in different formats, such as articles or videos. The specific post types (Article and Video_Post) inherit from the general class Post.
  If a user account is deleted, all the posts they created are also deleted, since they are considered composite parts of the user profile.
- Connections represent a two-way relationship: User A can connect with several other users (including User B), and vice versa, User B can connect with many users (including User A). Each user can add up to 30,000 other users, which reflects the official LinkedIn limit.
- A user can log in to their account using multiple devices.
  However, at a given moment, only one account can be active per device when using the LinkedIn application. Exceptions (not considered in our model):
    - When the user accesses the platform through a web browser - for example, using an anonymous tab on a computer
    - When a phone user opens one account in the app and another in the browser (such as Safari or Google Chrome).

  If a user account is deleted, all the associated devices and data are also removed, since they are considered composite parts of the user profile.

Relation type

- Aggregation (blue) : A user has multiple skills, but each skill exists independently in the skill database. For example, if a user account is deleted, the skill "SAS" remains in the database
- Composition (orange) :
    - A user creates posts. If the user account is deleted, all their posts are also removed.
    - A skill contains endorsements. If the skill is deleted, its endorsements are also removed.
    - A user owns devices they use; if the user is deleted, the associated devices are also removed from the database
- Inheritance (green) :
    - The Post class is extended by Article and Video_post. These classes inherit its common attributes.
- Association (yellow) :
    - Users can connect with each other. They share relationships, but no ownership exists between them
    - Endorsements are given by users, but the endorsement can still exist even if the user who gave it is deleted.

UML-GENERATING-CODE

```
@startuml
' --- General Styling ---
skinparam backgroundColor White
skinparam class {
FontName Arial
FontSize 13
BorderColor Black
BackgroundColor White
}
' --- Classes ---
class "User_Profile" as user_profile {
{static} user_id
name
industry
location
email
}
class "Skill" as skill {
{static} skill_id
skill_name
level
years_experience
}
class "Endorsement" as endorsement {
{static} endorsement_id
endorsement_date
strength
}
class "Post" as post {
{static} post_id
post_date
type
```

```
content
}
class "Article" as article {
{static} article_id
nbr_of_words
}
class "Video_Post" as video_post {
{static} video_id
duration
}
class "Connection" as connection {
{static} connection_id
connection_date
}
class "Device" as device {
{static} device_id
devicetype
last_used
}
' --- RELATIONSHIPS ---
' Aggregation (blue)
user_profile "0,N" o-[#1E90FF]- "0,100" skill : has
' Composition (orange)
user_profile "1" *-[#FF4500]- "0,N" post : creates
skill "1" *-[#FF4500]- "0,150" endorsement : receives
user_profile "1" *-[#FF4500]- "0,N" device : uses
' Inheritance (green)
post <|-[#32CD32]- article
post <|-[#32CD32]- video_post
' Association (yellow)
endorsement "0,N" -[#FFA500]- "1" user_profile : given_by
user_profile "0,30 000" -[#FFA500]- "0,30 000" connection : connects_to
@enduml
```