

ASSIGNMENT 1

NOTES

- ❑ *Students should read everything presented below carefully.*
- ❑ *This assignment is worth 15% of the overall grade.*
- ❑ *Appropriate softwares can be used to support your design. Hand-writing report is not acceptable.*
- ❑ ***Plagiarism must be avoided. Otherwise, zero mark is given.***
- ❑ *Please submit one hard copy report to your lab instructor on 7th November 2022 (week 45).*

BUSINESS DESCRIPTION

A group survival reality show has many seasons which are identified by year along with its location. Each season introduces a number of trainees from different companies. The information of trainees includes SSN, name (first name, last name), address, phone number, date of birth and one portrait photo. Each company has a unique company number, company name, address, phone number and establish date. At any one time, a trainee belongs to one company. But he/she can move to another one. Hence, the system keeps track the start date that trainee join a company. Every year, a company can register for some trainees with the show. However, there are some independent trainees who do not work for any company at that time. A trainees must be in 18-25 years old and can participate 3 seasons at most. If he/she success to join in a debut night, then he/she cannot register as a trainee of later seasons.

There is one MC and four mentors in a season. The information of MC includes: SSN, name (first name, last name), address, phone number. The information of mentors includes: SSN, name (first name, last name), address, phone number. Only producers, singers, songwriters are invited to the show as mentors. For producers, we have to store name of popular programs they produce. Signature song(s) of singers need to be recorded. The system also keeps track list of songs composed by songwriters. A mentor can be a singer, songwriter and producer.

A season of the show has 5 episodes. All episodes are live broadcast. We need to record the date and time each episode held on and its duration. Number of songs are performed in an episode. Information of a song includes a unique number, name of the song, year of release, name of original singer (if it's not a new song) and composer(s). The system has to keep track which song performed by a specified trainee or group and the result of each trainee in an episode. Note that the result of a episode does not take into account the next one. Detail of episodes are described as follows:

Episode 1 - Theme song stage

Theme song is a new song composed for a season. Trainees perform individually and are evaluated by mentors. The system needs to keep tracks the score of each trainee given by a specified mentor. Top 30 trainees with the highest average score enter to the next stage.

Episode 2 - Professional direction stage

From this episode, trainees have to perform on stage and get votes from studio audience. The information of an audience member includes: SSN, name (first name, last name), address, phone

number and occupation. In a season, a person can join studio audience of only one episode. Assume that voting system is a third-party, our system only records the result of voting, means number of votes for each trainee.

There are 6 songs divided into 3 professional directions: Dance, Vocal and Rap. Each song is performed by a group. Each group has 5 trainees, one of them is leader and another one is center (chosen by all member of the group). After the performance of a group, the studio audience can vote for their one favorite trainee. Top 20 trainees with the highest votes enter to the next stage.

Episode 3 - Group battle stage

5 trainees gather into a group, one of them is leader and another one is center. Two group performing the same song will battle with each other. After the performance of each pair of groups, the studio audience is given the opportunity to vote for their one favorite trainee out of both of the competing groups. The group has higher total number of all trainee's votes is winner. 2 trainees with fewest votes of each losing group (there are 2 losing groups) will be eliminated.

Episode 4 - Cooperation stage

Again, 16 remained trainees form into 4 groups. Each group is supported in rehearsal and performing on stage by an invited guest. Guest can be a singer or a group. Information of a group includes a unique name, number of members and signature song(s). Note that invited guests can not be leader and center of their groups. Top 10 trainees with the highest votes enter to the final episode – debut night.

Episode 5 – Debut night

Each trainee has two stages in debut night:

- Group performance: 10 remained trainees form into 2 groups. Each group performs a song with one member is center and another one is leader.
- Individual performance: trainees can choose any favourite song to sing or dance.

Top 5 trainees with the highest votes will debut in a group which named by the show.

REQUIREMENTS

1. Design a fully labelled (E)ERD according to your business description. The diagram has to show appropriate entities (with key attributes underlined), relationships, cardinality ratios, and optional & mandatory membership classes (6 points).
2. Mapping your (E)ER diagram above to a relational database schema (3 points).
3. Identify constraints not shown in your (E)ER diagram (1 point).