

Problem description project TDT4145, spring 2024

A system should be created for the purchase of theater tickets for Trøndelag Theatre. During a (theatre) season, the theater will have a number of plays that are performed in each theater hall. Trøndelag Theater has the following halls: Main Scene/Stage (516 seats), Old Scene/Stage (332 seats), Studio Stage (150 seats), Theater Basement (60 seats) and Theater Cafe (100 seats). In one hall, a number of performances of a play will be played, for which tickets can be bought. We can assume that in a season there is only one play in each hall, so that the sets can be kept in the hall. Theater plays are not performed over several seasons. In our system, you should be able to buy tickets for performances that take place during winter/spring season 2024, where we limit ourselves to two plays:

- “Kongsemnene” by Henrik Ibsen (Main scene)
- “Størst av alt er kjærligheten” by Jonas Corell Petersen (Old scene)

On the main stage, each chair has a number approximately consecutively from 1 upwards to 524, which we can see on the attached hall map for the Main Stage. Each chair also has a row number. For the Old Stage, the 332 chairs are distributed over the Parquet, Balcony and Gallery areas. At Old stage, the chairs are identified by row number and seat number, which we can see in the appendix with a map of the hall. Row number and seat number apply within an area (Parquet, Balcony and Gallery).

We will deal with the performances that will be (was) played in February 2024. The Kongsemnene run on 1 Feb, 2 Feb, 3 Feb, 5 Feb and 6 Feb. Størst av alt er kjærligheten runs on the following days: 3 Feb, 6 Feb, 7 Feb, 12 Feb, 13 Feb and 14 Feb. Kongsemnene starts at 19.00. Størst av alt er kjærligheten starts at 18:30.

The tickets have different prices depending on the play and which group of customers you belong to. Not all plays have all types of groups. E.g. Kongsemnene does not have tickets for children.

The tickets cost the following for “Kongsemnene”:

Ordinary: NOK 450
Honour: NOK 380
Student: NOK 280
Group 10: NOK 420. Applies to a minimum of 10 tickets
Group honours 10: NOK 360

For “Størst av alt er kjærligheten”, tickets cost:

Ordinary: NOK 350
Honour: NOK 300
Student: NOK 220
Children: NOK 220
Group 10: NOK 320
Group honours 10: NOK 270

To buy tickets, you must have a customer profile, where each customer is registered with a mobile number, name and address. All ticket purchases are linked to a customer profile. A ticket purchase is

recorded with date and time, and can consist of several tickets for a specific performance (performance day) of a play. All tickets have chair no, row no and area registered.

In a play, **actors** play roles. A **role** has a name. Some actors may have multiple roles in the same play. Some roles may have multiple actors, who play the role on different days, but we do not need to know who is playing the role in a particular performance. Theater plays consist of one or more **acts**. Roles are linked to different acts in the play. Some roles may be linked to all acts. Some roles only take part in some of the acts. The acts have a number and perhaps a name.

For our two plays, you must enter the roles and actors you find under "Contributors" on Trøndelag Teater's website about the plays. In the appendix, it is stated which acts in Kongsemnene the various roles take part in. For *Størst av alt er kjærligheten*, you can assume that the performance has one act. Where no roles are given, you can assume that the actor is playing himself.

For a play, there are a number of other tasks that must be performed, e.g. there is a **musician**, **director**, **scenography manager**, **costume design manager**, **choreographer**, **music and sound design manager**, **dramaturg**, **prompter** and the theater itself has a **manager**. Each person involved has an identifier, a name, an e-mail address and an employee status, which can be permanent **employee**, **temporary employee**, **contractor** or **extra/volunteer**. If you cannot find employee status for someone involved, you can assume a status.

Arrangements must be made to register relevant tasks for a play. For our two performances, you must enter the data you find under "Artistic team" on the theater pieces' websites. You do not need to store the "production team".

The following use cases should be implemented in Python and/or SQL.

1. We wish to insert the two halls mentioned above, together with chairs, plays, performances, acts, roles, actors and other actors, as described in the text above. This can be implemented in SQL.
2. With the assignment, some files have been posted that describe which chairs have already been sold for some performances. Here, a Python program will be created that reads the files and inserts which chairs have been sold. It is OK if you insert the chairs as well based on these text files. It is also OK for the buyer of the already sold chairs to be a standard user. i.e. the same preset user.
3. Here you will buy 9 adult tickets for the performance of *Størst av alt er kjærligheten* on 3 February, where there are 9 tickets available and where the seats are in the same row. The chairs do not have to be next to each other. We want to get a total of what it costs to buy these tickets, but you don't need to take the payment itself into account, we assume it happens on another system that you don't need to create. This function will be implemented in Python and SQL.
4. Here you will implement a Python program (using SQL) that takes in a date and prints out which performances are on this date and lists how many tickets (i.e. seats) have been sold. Also include performances where no tickets have been sold.
5. We want to create a query in SQL that finds which (names of) actors are performing in the various plays. Print the name of the play, the name of the actor and role.¹

¹ <https://www.trondelag-teater.no/forestillinger/storst-av-alt-er-kjaerligheten>

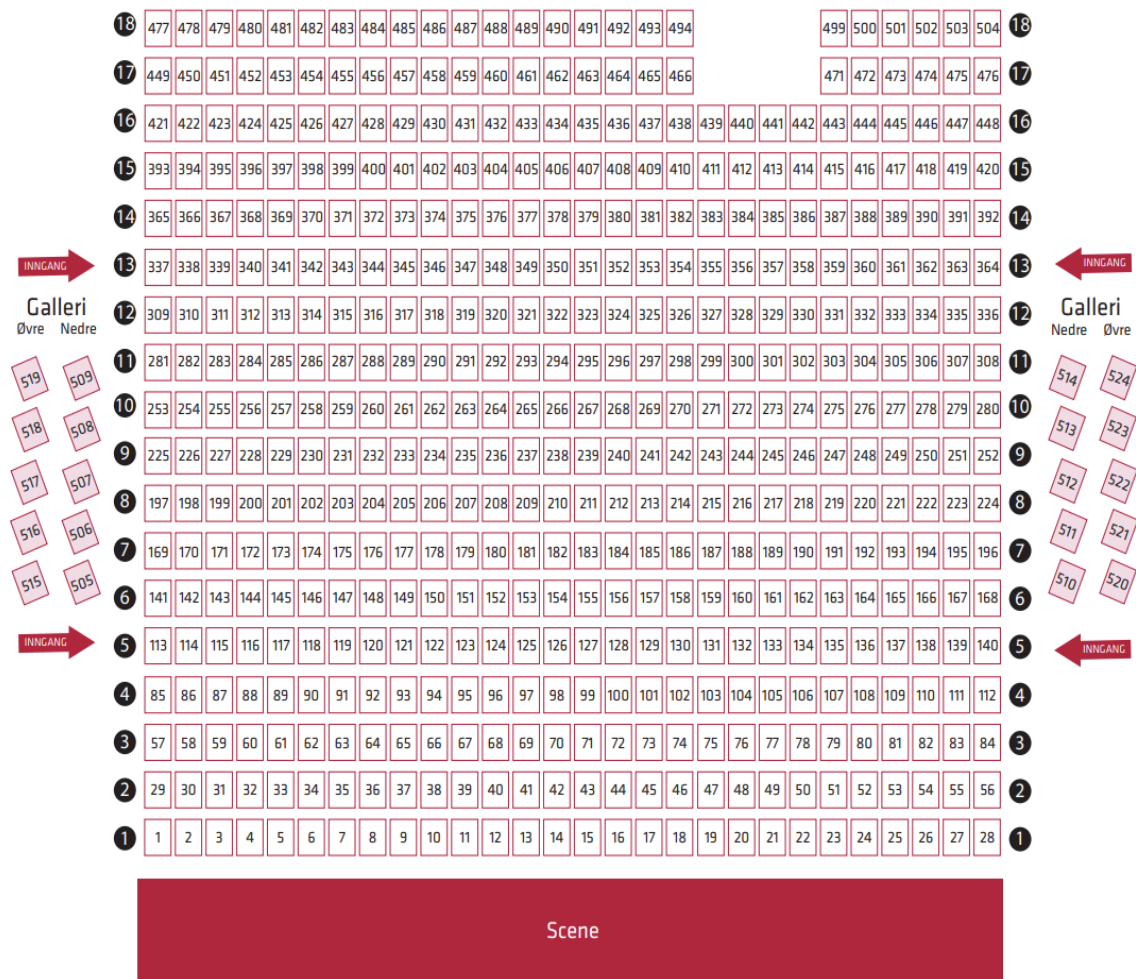
² <https://www.trondelag-teater.no/forestillinger/kongsemnene>

- We want to create a query in SQL that finds which performances have sold the best. Print the name of the performance and the date and the number of seats sold sorted by the number of seats in descending order.
- You should create a Python program (and SQL) that takes an actor's name and finds which actors they have played with in the same act. Write the names of both and which play it happened on.

Attachments

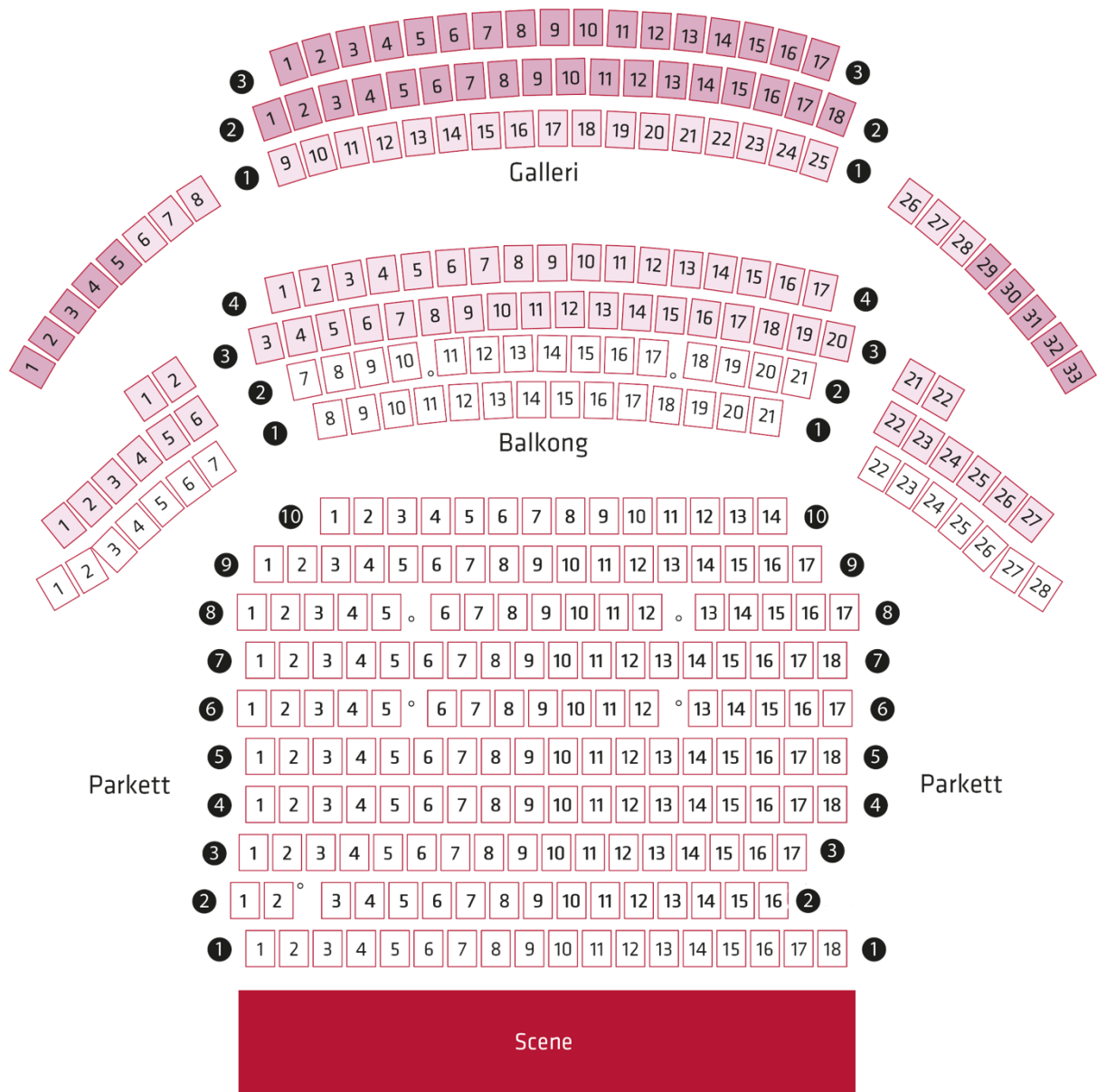
Hovedscenen

Trøndelag Teater



Gamle Scene

Trøndelag Teater



Acts and roles in Kongsemnene

Kongsemnene is a historical play in five acts. There may be changes in the roles in relation to what is written on the theatre's website. The roles have been updated while the task has been created. Then use what you find on the Theatre's websites.

Role	Acts
Håkon Håkonson	1, 2, 3, 4, 5
Dagfinn Bonde	1, 2, 3, 4, 5
Jatgeir Skald	4
Sigrid	1, 2, 5
Ingeborg	4
Guttorm Ingesson	1,
Skule Jarl	1, 2, 3, 4, 5
Inga frå Varteig	1, 3,
Paal Flida	1, 2, 3, 4, 5
Ragnhild	1, 5
Gregorius Jonsson	1, 2, 3, 4, 5
Margrete	1, 2, 3, 4, 5
Biskop Nikolas	1, 2, 3,
Peter	3, 4, 5