Project Phase I

COMP-4150: Adv & Practical Database Systems

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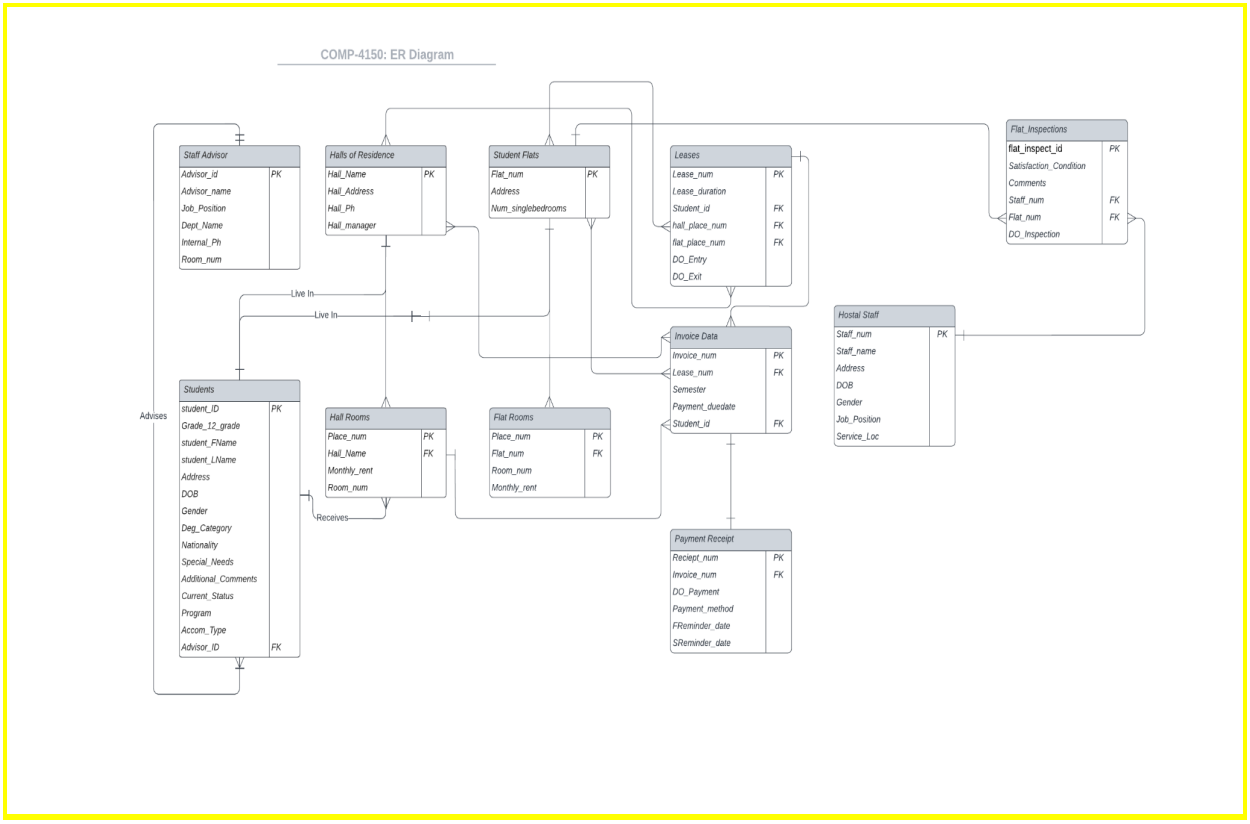
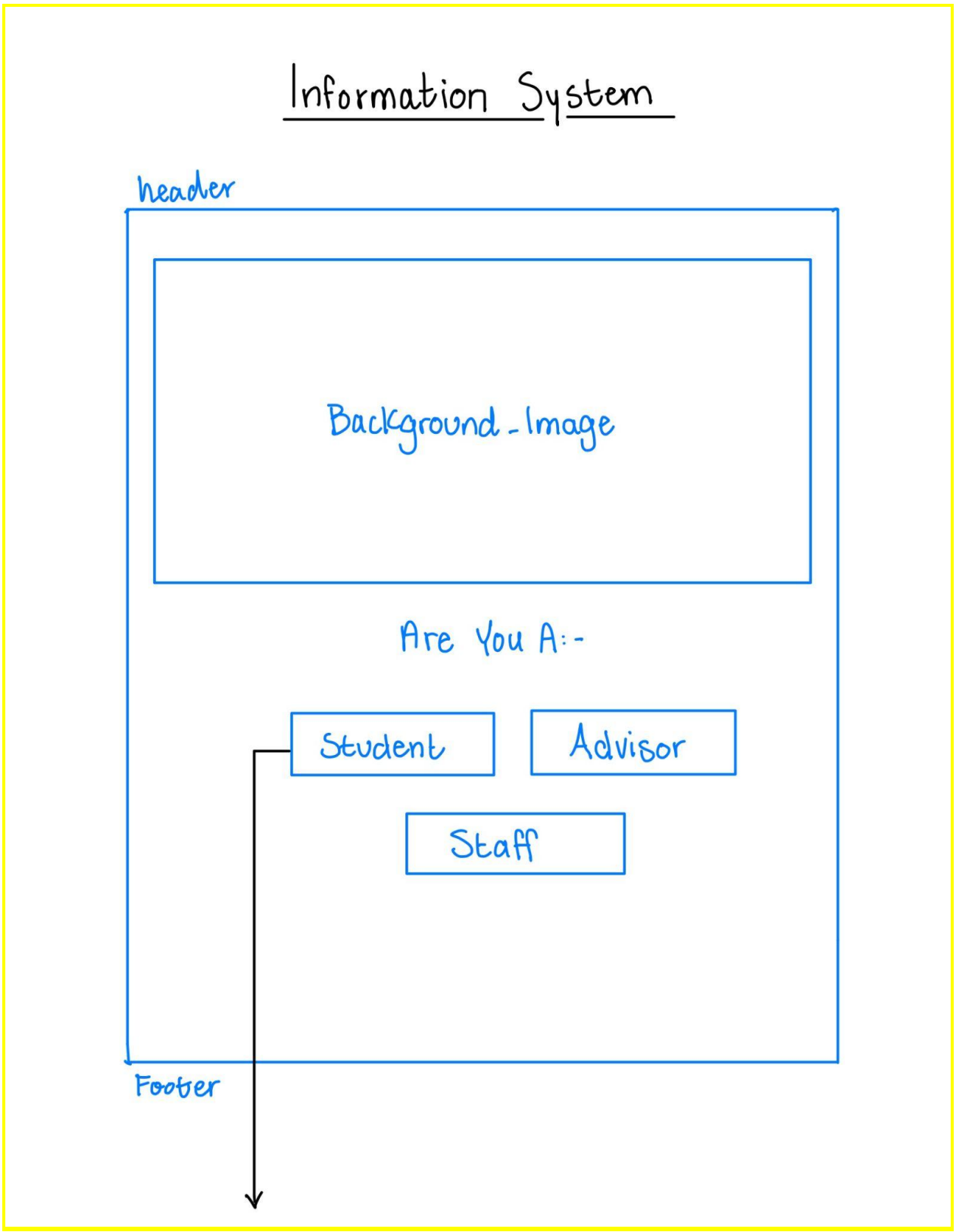
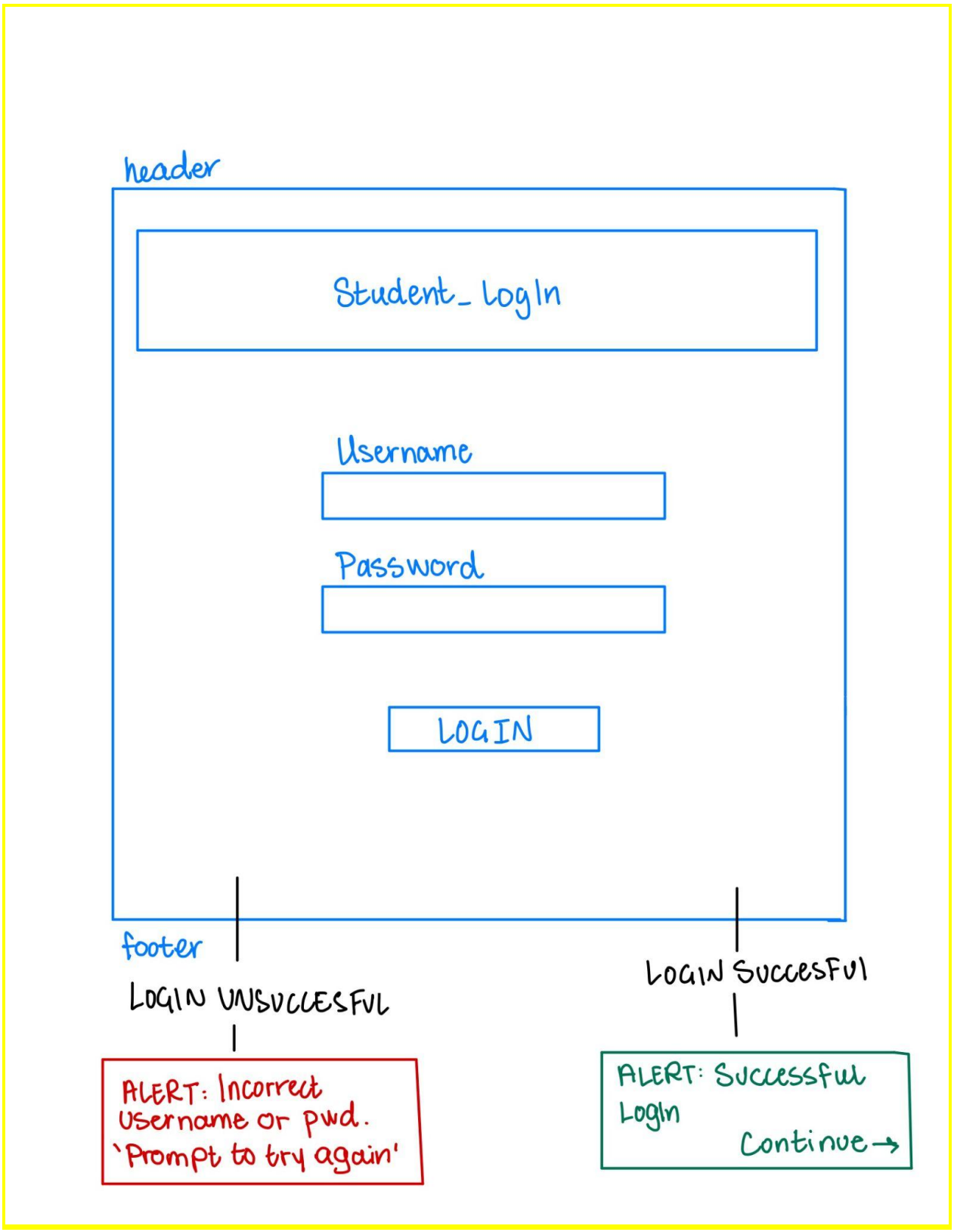
1. Added in File

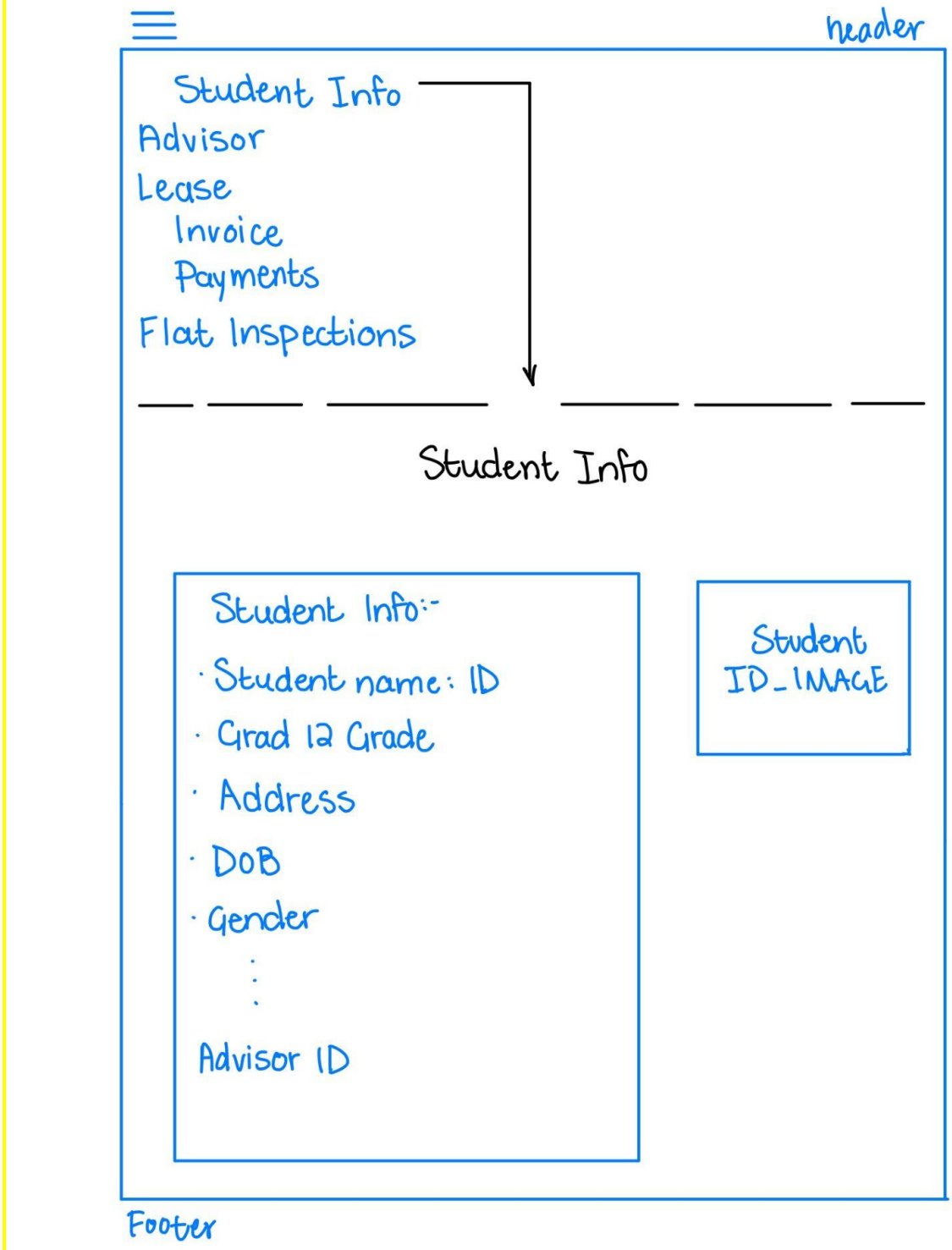


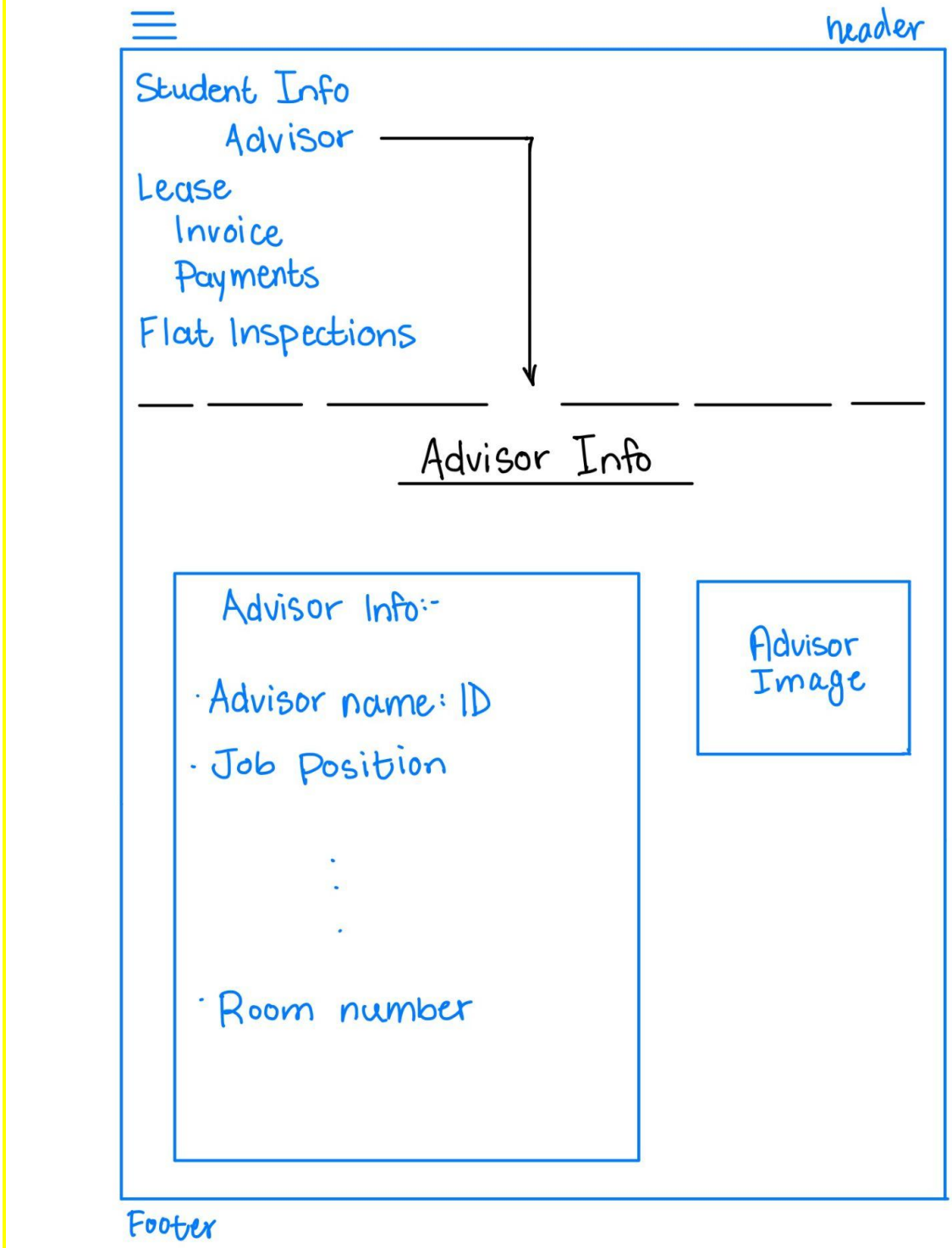
2. In SQL File

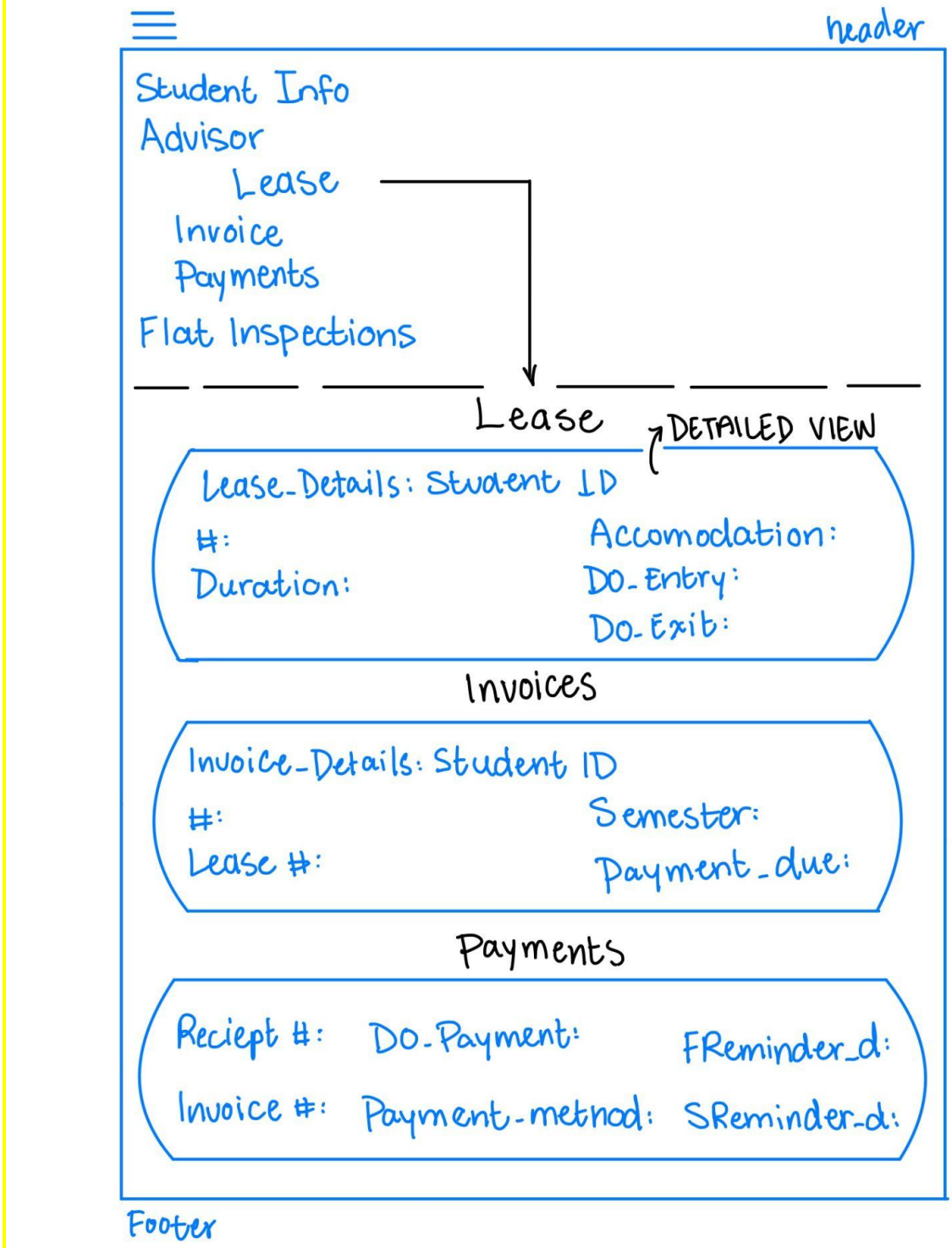
3.

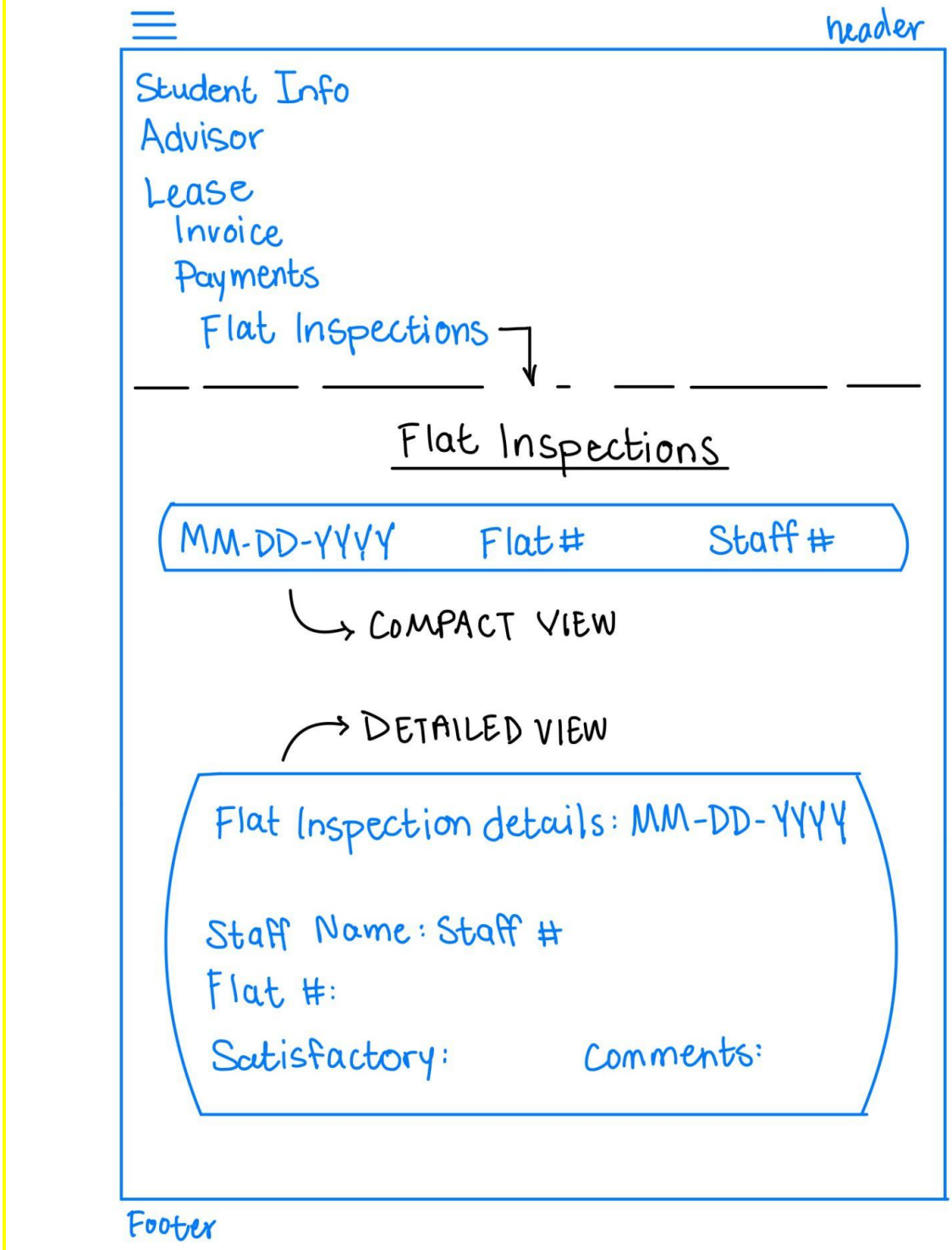

Information System
header
Background_Image
Are You A:-
Student
Advisor
Staff
Footer


header
Student_ LogIn
Username
Password
LOGIN
footer
LOGIN UNSUCCESFUL
ALERT: Incorrect username or pwd. 'Prompt to try again'
LOGIN SUCCESFUL
ALERT: Successful LogIn
Continue →


header
Student Info
Advisor
Lease
Invoice
Payments
Flat Inspections
Student Info
Student Info:-
· Student name: ID
· Grad 12 Grade
· Address
· DOB
· Gender
Advisor ID
Student ID_IMAGE
Footer


header
Student Info
Advisor
Lease
Invoice
Payments
Flat Inspections
Advisor Info
Advisor Info:-
· Advisor name: ID
· Job Position
· Room number
Advisor Image
Footer


header
Student Info
Advisor
Lease
Invoice
Payments
Flat Inspections
Lease
DETAILED VIEW
Lease_Details: Student ID
#:
Duration:
Accomodation:
DO_Entry:
DO_Exit:
Invoices
Invoice_Details: Student ID
#:
Lease #:
Semester:
Payment_due:
Payments
Reciept #:
Invoice #:
DO_Payment:
Payment_method:
FReminder_d:
SReminder_d:
Footer


header
Student Info
Advisor
Lease
Invoice
Payments
Flat Inspections
Flat Inspections
MM-DD-YYYY Flat # Staff #
COMPACT VIEW
DETAILED VIEW
Flat Inspection details: MM-DD-YYYY
Staff Name: Staff #
Flat #:
Satisfactory:
Comments:
Footer

4. Constraints, indexes or views defined in the database should be presented.

Constraints:

1. CONSTRAINT valid_values CHECK (current_status IN ('placed', 'waiting')),

- This constraint checks that the students current accommodation status is either labeled as ‘placed’ or ‘waiting’

2. CONSTRAINT CHK_cond CHECK (Satisfaction_cond = 'Y' OR Satisfaction_cond = 'N'),

- This constraint checks that the value of Satisfaction_cond is either a ‘Y’ to indicate flat inspection was satisfactory or ‘N’ for unsatisfactory.

3. CONSTRAINT map_one_room CHECK ((hall_place_num IS NOT NULL AND flat_place_num IS NULL) OR (hall_place_num IS NULL AND flat_place_num IS NOT NULL)));

- This constraint checks in the leases table that either a hall place number exists or a flat place number exists to ensure that a student is not mapped to both a hall room and a flat room.

Indexes:

- CREATE INDEX hall_of_residence_idx ON Halls_of_Residence (Hall_Name);
- CREATE INDEX Grade_12_num_idx ON Student(grade_12_num);
- CREATE INDEX special_Needs_idx ON Student(special_needs);

Views:

- Student Table View
  CREATE VIEW Student_public_view AS
  SELECT student_id, student_fname, student_lname, deg_category, program
  FROM Student;

- Student lease info
  CREATE VIEW student_lease_info AS
  SELECT l.student_id, l.lease_num, h.hall_name, f.flat_num,
  CONCAT(h.place_num, f.place_num) as place_num,
  CONCAT(h.room_num, f.room_num) as room_num,
  CONCAT(h.monthly_rent, f.monthly_rent) as monthly_rent,
  l.DO_exit - l.DO_entry as lease_duration
  FROM Leases l

```
LEFT JOIN Hall_rooms h ON hall_place_num = h.place_num
LEFT JOIN Flat_rooms f ON flat_place_num = f.place_num;
```

5.

QUERIES:

a.

```
SELECT s.student_fname, s.student_lname, s.grade_12_num, l.date_of_entry,
l.date_of_exit, sl.hall_name, sl.flat_num, sl.room_num, sl.monthly_rent
FROM Student s, student_lease_info sl, Leases l
WHERE s.student_id = sl.student_id AND l.lease_num = sl.lease_num;
```

b.

```
SELECT SUM(rent) as total FROM (
SELECT (sl.monthly_rent*(sl.lease_duration/30)) as rent, s.student_fname
FROM Student s, student_lease_info sl, Invoice i, Receipt r
WHERE s.student_fname = 'Connie' AND s.student_id = sl.student_id AND sl.lease_num =
i.lease_num AND i.invoice_num = r.invoice_num);
```

c.

```
SELECT s.student_fname, s.student_lname, i.payment_due, (SELECT DO_payment FROM
Receipt WHERE i.invoice_num=invoice_num) as date_payed
FROM Invoice i, Student s, Leases l
WHERE i.invoice_num NOT IN (
   SELECT invoice_num
   FROM Receipt
   WHERE DATE '2022-09-20' > DO_payment )
AND i.lease_num = l.lease_num
AND l.student_id = s.student_id;
```

d.

```
SELECT fi.Satisfaction_cond, hs.Staff_name, fi.DO_Inspection as inspection_date,
fi.comments, f.flat_num, f.street, f.city, f.postal_code
FROM Flat_Inspections fi, Hostel_staff hs, Flats f
WHERE fi.Satisfaction_cond = 'N' AND fi.Staff_num = hs.Staff_num AND fi.flat_num =
f.flat_num;
```

e.

```
SELECT s.student_fname, s.student_lname, s.grade_12_num, h.Hall_name, hr.place_num,
hr.room_num
FROM Leases l, Hall_rooms hr, Halls_of_Residence h, Student s
WHERE l.hall_place_num = hr.place_num AND hr.Hall_name = h.Hall_name AND s.student_id
= l.student_id  AND h.Hall_name = 'MCD';
```

f.

```
SELECT s.student_fname, s.student_lname, s.grade_12_num, s.gender, s.nationality,
s.program
FROM Student s
WHERE s.current_status = 'waiting';
```

g.

```
SELECT deg_category, COUNT(*) AS Degree FROM student GROUP BY deg_category
```

h.

```
SELECT s.student_fname, s.student_lname, a.advisor_fname, a.advisor_lname,
a.internal_ph
FROM Student s, Staff_Advisor a
WHERE s.student_fname  = 'Jess' AND s.advisor_id = a.advisor_id
```

i.

```
SELECT min(monthly_rent) AS MIN_RENT, max(monthly_rent) AS MAX_RENT ,AVG(monthly_rent)
AS AVG_RENT FROM Hall_rooms;
```

j.

```
SELECT staff_num, staff_name, TRUNC( ( CURRENT_DATE-DOB )/365 ) AS age, street, city,
postal_code FROM Hostel_Staff;
```