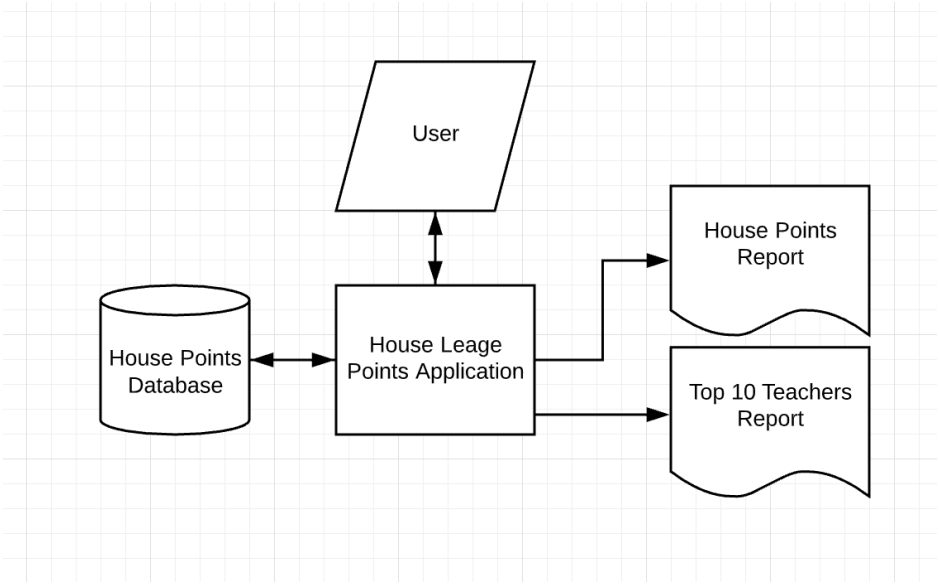
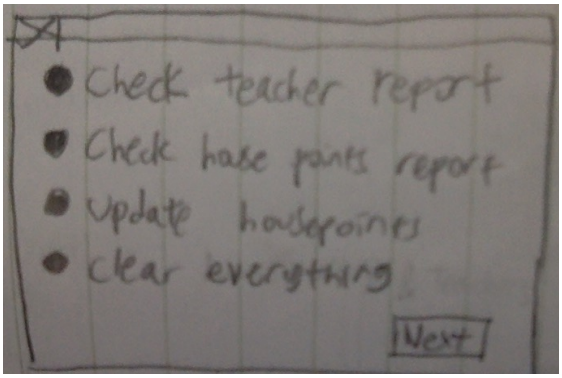
Criterion B:

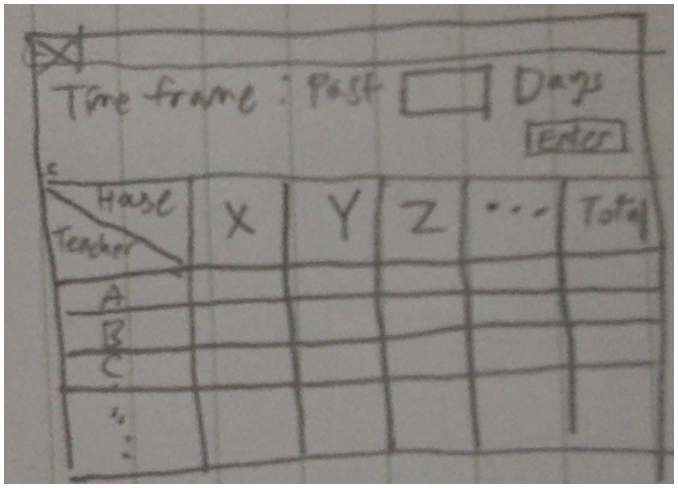
a. Systems FlowChart



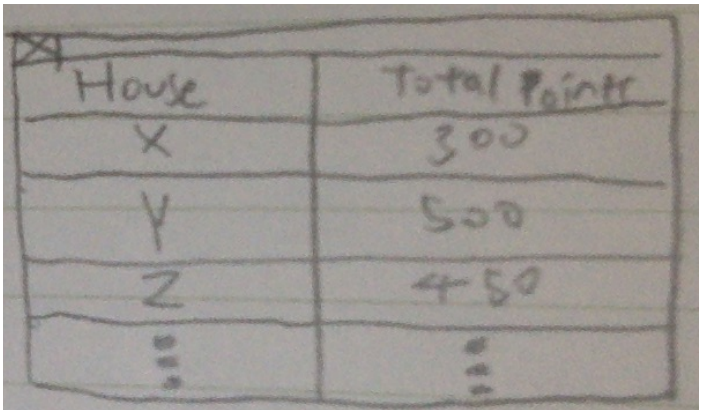
b. User Interface Design (hand drawn)



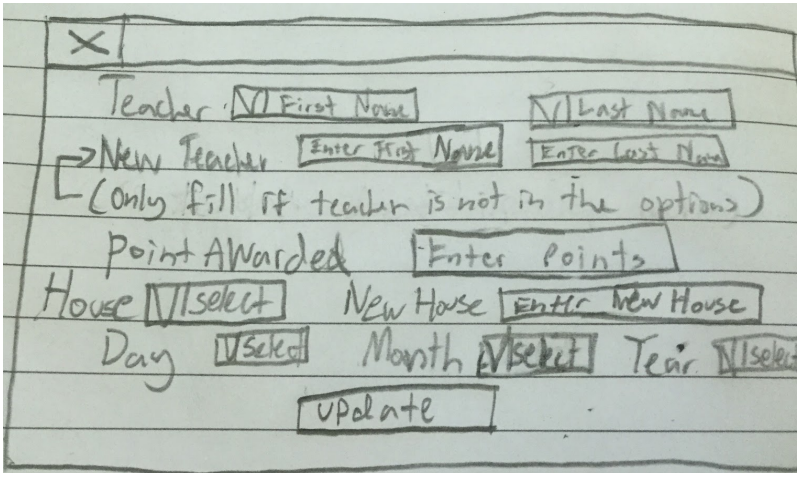
Home Window



Teacher Report



House Points Report

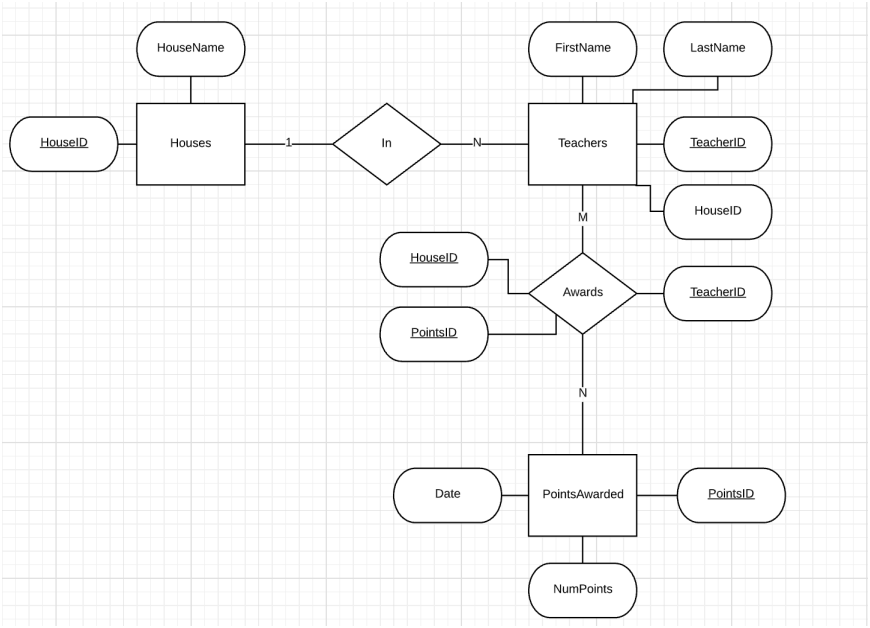


Update House Points

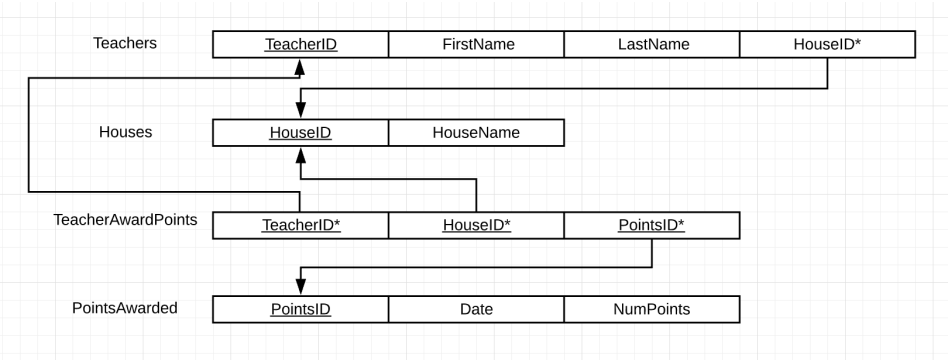
*When there are new teachers or houses, instead of choosing a teacher and house from the drop down menu, the user should type in the new house and teacher.

c. Data Design (ERD, Relational mapping --- no need for the DDL or Data Dictionary)

ERD:



Relational Mapping:



d. Algorithm Design (Flowchart and/or Pseudocode ; SQL if significant processing is done using the database)

SQL Code for getting top 10 teachers:

```
SELECT Teachers.FirstName, Teachers.LastName
From Teachers JOIN TeacherAwardPoints JOIN PointsAwarded
WHERE Teachers.TeacherID = TeacherAwardPoints.TeacherID AND
TeacherAwardPoints.PointsID = PointsAwarded.PointsID
GROUP BY Teachers.TeacherID
ORDER by SUM(PointsAwarded.PointsID) LIMIT 10
```

SQL Code for getting total house points:

```
SELECT Houses.HouseName, SUM(TeacherAwardPoints.PointsID)
FROM Houses JOIN TeacherAwardPoints
WHERE Houses.HouseID = TeacherAwardPoints.HouseID
Group By Houses.HouseID
```

e. Test Plan

Situations to be Tested	Test Cases (If there are multiple cases to test)	Expected Outcome
Client chooses to view the teachers report	There are no teachers who have awarded house points	An empty table is presented
Client chooses to view the teachers report	There are only 5 teachers who have awarded house points.	A table with the names of the 5 teachers who awarded house points is presented in a separate window.
Client chooses to view the teachers report	There are 20 teachers who have awarded house points.	A table with the names of the top 10 teachers who awarded the most house points is presented in a separate window.
Client chooses to view the teachers report	Client chooses the time frame of the past month.	The 10 teachers presented in the table should be the top 10 teachers with the most points awarded in the past month.
Client chooses to view the teachers report	Client chooses the time frame of the past week.	The 10 teachers presented in the table should be the top 10 teachers with the most points awarded in the past week.
Client choose to view the house points report	N/A	A table with the names of each house and their total points should be presented in a separate window.
Client exits the application.	N/A	The application should close gracefully without any unnecessary messages.
Client enters newly awarded house points.	Name: Ms. Richardson House: Hydra Points: 500	The next time the client views the reports, the teacher report and the house points report

	Date: Apr 22 2020	should be updated accordingly. - Hydra's total points should increase by 500 points - Number of points awarded by Ms. Richardson in total and to Hydra should increase by 500 points
Client enters newly awarded house points.	Name: Mr. Hsu House: Wyvern Points: 150 Date: Mar 12 2020	The next time the client views the reports, the teacher report and the house points report should be updated accordingly. - Wyvern's total points should increase by 150 points - Number of points awarded by Mr. Hsu in total and to Wyvern should increase by 150 points
Client clears everything.	N/A	The next time the client views the reports, the house points in the teacher report and the house points report should be blank.
Client enters an invalid value for points.	Teacher: Mr. Berry House: Naga Points: -50 Date: May 2 2021	Client should be notified with an error message.
Client enters an invalid value for points.	Teacher: Mrs. Berry House: Shenlong Points: 0 Date: Jan 30 2021	Client should be notified with an error message.
Client enters an invalid value for points.	Teacher: Mrs. Berry House: Hydra Points: 0.5 Date: Feb 27 2021	Client should be notified with an error message.
Client enters an invalid date	Teacher: Mr. Weinberg	Client should be notified with

	House: Shenlong Points: 230 Date: Jan 32 2021	an error message.
Client enters an invalid date	Teacher: Mr. Hendrikson House: Naga Points: 100 Date: Feb 0 2021	Client should be notified with an error message.
Client enters an invalid date	Teacher: Dr. Chute House: Hydra Points: 160 Date: Feb 30 2021	Client should be notified with an error message.
Client enters new house name.	Teacher: Mr. Mellon Points: 200 Date: Dec 15 2019 New House: Gryffindor	The next time the client views the reports, Gryffindor should be added to the teacher report and house points report. Gryffindor should appear in the drop down menu for selecting a house the next time the client enters house points.
Client enters new house name.	Teacher: Dr. Katz Points: 200 Date: Dec 30 2019 New House: Slytherin	The next time the client views the reports, Slytherin should be added to the teacher report and house points report. Slytherin should appear in the drop down menu for selecting a house the next time the client enters house points.
Client enters new teacher name.	New Teacher: Mr. Sam Points: 50 Date: Feb 7 2020 House: Shenlong	The next time the client views the reports, Mr. Sam should be added to the teacher report. Mr. Sam should appear in the drop down menu for selecting teachers the next time the client enters house points.

Client enters new teacher name.	New Teacher: Mrs. Plath Points: 150 Date: Feb 28 2020 House: Naga	The next time the client views the reports, Mrs. Plath should be added to the teacher report. Mrs. Plath should appear in the drop down menu for selecting teachers the next time the client enters house points.
Client simultaneously chooses from an existing teacher and enters a new teacher name.	Teacher: Ms. Richardson Points: 200 Date: Dec 15 2019 House: Naga New Teacher: Mr. Brian	Client should be notified with an error message.
Client simultaneously chooses from an existing teacher and enters a new teacher name.	Teacher: Mrs. Angland Points: 100 Date: Nov 15 2019 House: Shenlong New Teacher: Mr. Johnson	Client should be notified with an error message.
Client simultaneously chooses from an existing house and enters new house name.	Teacher: Ms. Richardson Points: 200 Date: Dec 15 2019 House: Naga New House: Unicorns	Client should be notified with an error message.
Client simultaneously chooses from an existing house and enters new house name.	Teacher: Mrs. Angland Points: 100 Date: Nov 15 2019 House: Shenlong New House: Spiders	Client should be notified with an error message.