# IS251 - LAB#08 Activities
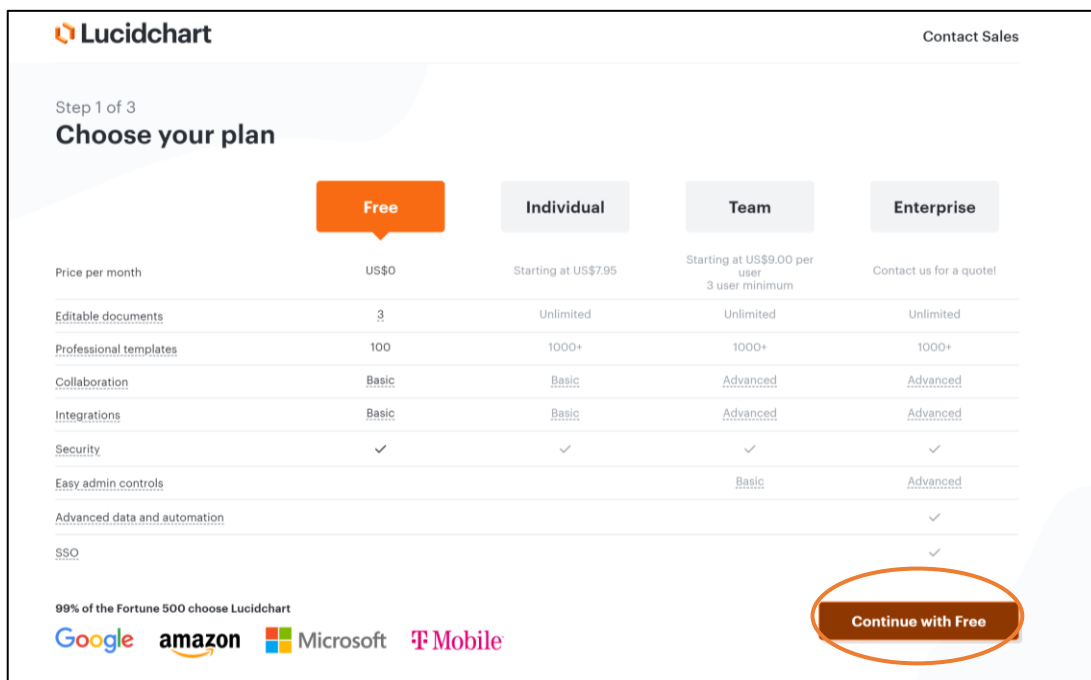
# ERD

To draw ERD you need to register at lucidchart as the following:

1- https://www.lucidchart.com/pages/
2- Click sign up free button
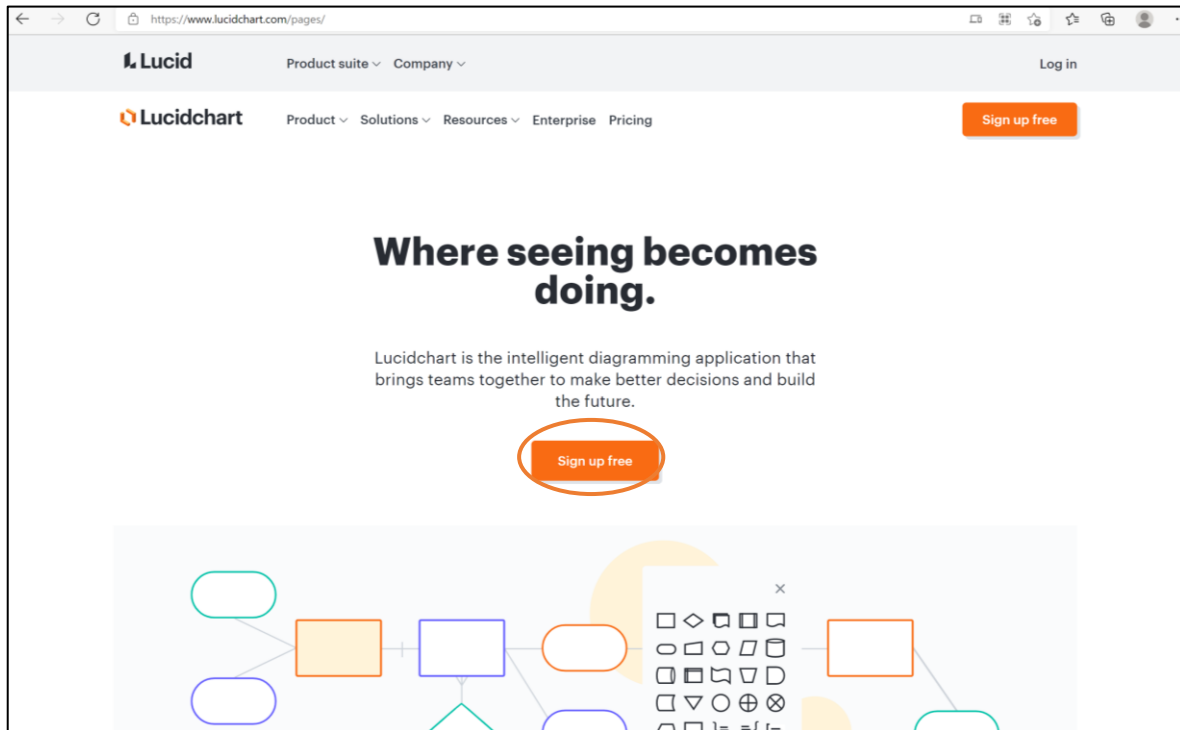


3- Click continue with free button at the end of the page then continue the registration form.

4- Choose as the following and then click start diagramming:

**What is your role? Select one.**

| | |
|---|---|
| ○ Business admin / management | ○ Marketing |
| ○ Customer service | ○ Process / logistics |
| ○ Data / analytics | ○ Product management |
| ○ Design | ○ Project management |
| ○ Engineering | ○ Sales |
| ○ Finance | ○ Strategy |
| ○ HR | ○ Students / education industry **1** |
| ○ IT | ○ Other |

**Which best describes you? Select one.**

○ Administrator

○ Educator

○ Staff

○ Student **2**

**What type of student are you?**

○ Grades Pre K-6

○ Grades 7-12

○ Higher education **3**

5- On the top left click new Lucidchart > new document and then you can start drawing
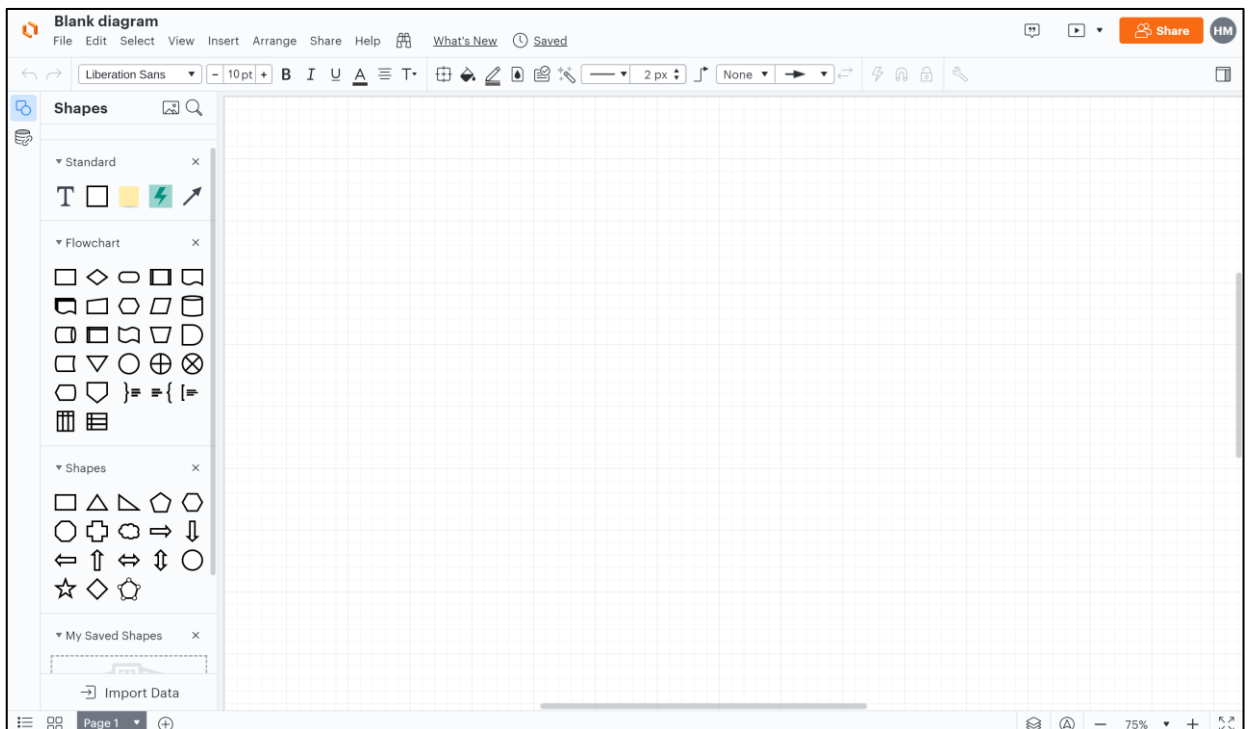
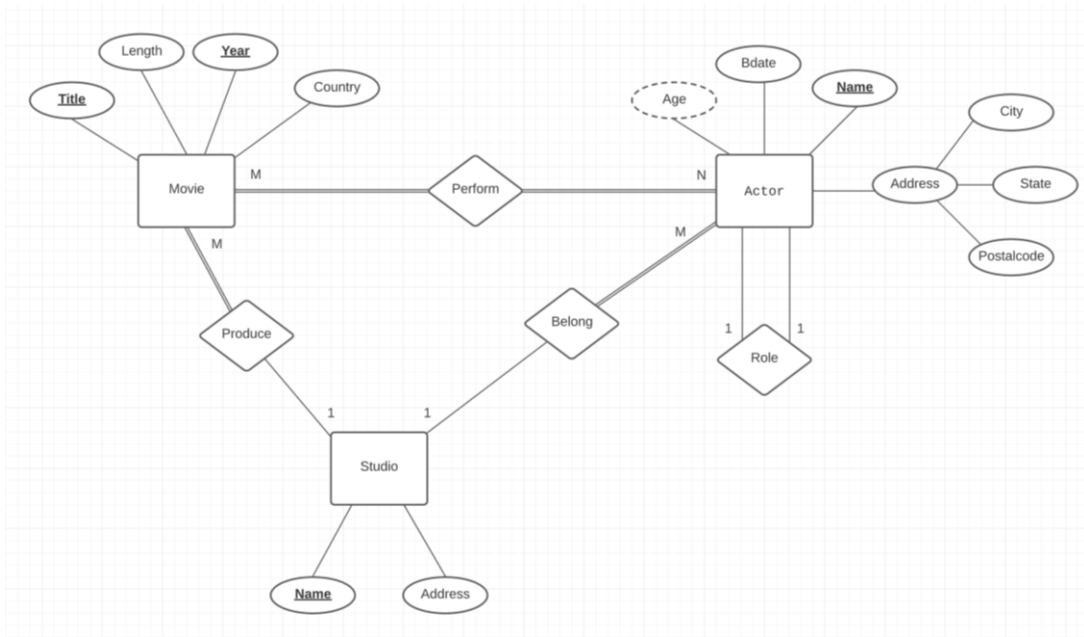**Draw an Entity Relationship Diagram for the following scenario:**

Consider the following set of requirements for a Cinema database that is used to keep track of each movie shown on its screen. As it mentioned by stakeholders, the system should show the movie title, production year, country of production and length. A movie is identified by its name and the year it was released.

In addition, they asked for the actors information to be appeared too. For example, an actor should have a unique name, birth date, age, and address; you should be able to search about the city, state, and postal code of the actor's address. Note that an actor can appear in any number of movies and he belongs to one studio. An actor also can be a director of the movie in some cases.

Moreover, studios should be listed and include an address and unique name. As a database designer, you have to know that a studio can own number of movies and a movie is always owned by one studio.

Draw ERD using Chen model with cardinality and participation constraints

**Solution:**

# IS251 - LAB#09 Activities

# ERD

**Draw an Entity Relationship Diagram for the following scenarios:**

1- Suppose you are designing a schema to record information about novels (the Internet Novel Database, or INDB). Your database needs to record the following information:

- For each novel, its title, publication date, number of pages, abstract. Each novel is identified by its **International Standard Book Number** (**ISBN**) which is a unique numeric commercial book identifier.
- For each writer, his/her SSN, name (which must consist of first, middle, and last name), date of birth, short biography. A writer may write multiple novels. Each novel is written by exactly one writer.
- For each user, his/her username which is a unique name for each member, password, and e-mail. A user may rate multiple novels, and a novel may be rated by multiple users. Each rating has a score of 0 to 100.

2- Suppose that you are designing a schema to record information about a reality show on television. Your database needs to record the following information:

- For each reality show there are unique id, name, type and participants' names who in the show.
- For each producer, unique producer's id, name, address which is structured as (country's name and city's name) and Phone no (multiple entries allowed). Each show must produced by exactly one producer. And one producer creates exactly one show.
- For each channel that presents the show, its unique id, name, head office and start year. A channel may broadcast multiple shows. Each show is broadcasted by exactly one channel.

- For each user who watch a show ability to rate it. A user has a unique id, name, password and age. A user may rate multiple shows, and a show may be rated by multiple users. Each rating has a score.

3- Consider the following set of requirements for a university database that is used to keep track of students' transcripts.

- The university keeps track of each student's name, student number, social security number, permanent address and several contact numbers, birth date, age, sex and program degree (B.A., B.S., . . ., Ph.D.).

- Some user applications need to refer to the city, state, and zip code of the student's permanent address. Both social security number and student number have unique values for each student.

- Each department in the university is described by a name, department code, office number, office phone, and college name that it belongs to. Both name and code have unique values for each department.

- A department can train other departments.

- Each student must enrol in one department and a department have many students.

- Each course has a course name, description, and course number, number of credit hours, level. The value of course number is unique for each course.

- Course may generate many sections, each has a semester, year, section number, and references a single course. The section number distinguishes sections.

- Each section may contain many students.

**Solution:**



Entity-Relationship Diagram (Novel):
- Novel entity with attributes: Pages_N, ISBN, Title, abstrac, P_dat
- Writer entity with attributes: Name (First, Middl, Last), SSN, DO, bio
- User entity with attributes: UserNam, Passwor, Email
- Writ relationship (M:1) between Novel and Writer
- Rate relationship (M:M) between Novel and User with attribute Score



Entity-Relationship Diagram (Reality Show):
- Reality Show entity with attributes: RType, Rname, RParticipant, RID
- Channel entity with attributes: CName, CStartYear, CID, CHeadOffice
- Producer entity with attributes: PID, Phone, Name, Address (City, Country)
- User entity with attributes: UID, UAge, UName, UPSW
- Broadcasts relationship (M:1) between Reality Show and Channel
- Produces relationship (1:1) between Reality Show and Producer
- Rates relationship (M:M) between Reality Show and User with attribute Rating