Mini World: AMUSEMENT PARK

The Database keeps track of the activities going on in an amusement park. It takes details about the visitors and the employees working there. It also keeps track of the admission to various attractions in the park and the employees working at a particular ride. It also maintains the pictures taken by the visitors at the park and allows them to retrieve these photos at the exit related to the guest. The data in the database is generally entered by various staff members.

Entities and attributes:

1. VISITOR - A person who visits the Amusement park. We take the person's Name, Date of Birth, Phone number, Social security id (key attribute).

2. STAFF - There may be multiple persons involved in the maintenance, operation of an amusement park. They may be working in multiple departments like management, technicality, maintenance worker and security. Each person has “Name, Employee id (key attribute), Address, Phone Number, Gender, Joining Date, Working hours”.

3. ATTRACTION - Every ride has a unique ID for the ride, name for the ride and the cost of admission for the ride.” Ride id (key attribute), Ride name”

4. PHOTOS- It contains all the photos taken in the amusement park each represented by a “Size, Price, Time”. It is a weak entity with identifying relation ADMIT_TICKET and partial key attribute time.

5. MAINTAINENCE SCHEDULE – It Stores the timings in between the respective rides are under maintenance” Start time, End time”. It is a weak entity with identifying relation DURING_MAINTAINANCE.

Relationship:

1. ADMIT TICKET: It is a quaternary relationship between visitor, the employee in charge of issuing the ticket, the rides where the ticket is used and the photos which are under the admit ticket. It has the attributes" Unique ID, Cost of ticket, Date" The employee may issue n tickets to n visitors. Each visitor gets a ticket and may use the ticket at m rides. So, the cardinality ratio is 1: n: n: n (visitor (total), staff(partial), attractions(partial), photos(total).
2. DURING_MAINTENANCE: There is a binary relationship between Maintenance schedule and the maintenance staff working there during that time. More than one worker may work during a maintenance schedule. The cardinality ratio is 1: n (schedule (total), staff(partial)).
3. WORKING_AT: It is a binary relationship between an attraction and the employee. More than one employee may work at an attraction. The cardinality ratio is 1: n (attraction (total), staff(partial)).
4. MANAGED_BY: It is a binary relationship between a ride and management staff responsible for a ride. Each attraction has a single manager. The cardinality ratio is 1: 1(ride(total), manager(total)).
5. LOCATION: It is a binary relationship between a photo and the ATTRACTION where the photo was taken. At an attraction many photos can be taken. The cardinality ratio is 1: n (attraction(partial), photo(total)).

Subclasses*:*

1. Subclasses of entity STAFF are maintenance staff, management staff and operating staff.

Derived attributes:

1. Age: As Age is calculated from Date of birth. It is a derived attribute of the Date of Birth

2. Ticket cost is decided by the considering the age of an individual (different for child and adult).
3. Eligibility of a person for a ride is decided by a person's age

Multivalued attributes:

1. Phone number: A Visitor can contain multiple phone numbers

Composite attributes:

1. Name: Composite attribute of first name and last name of an individual. As it contains First name and Last name as its attributes.
2. Address : It is an composite attribute of street, door number, zip code, state.

Functional Requirement's:

1. Retrieval of all the photos related to a particular ticket id.
2. Popular rides.
3. Total price of the photos taken by the visitor.
4. To search the name of the employee.
5. Add Employee, Visitor, Ride, Maintenance schedule Details.
6. Update Employee details, Maintenance schedule Details.
7. Delete Employee details, Maintenance schedule Details.
8. Analysis of the attraction which has the highest number of visitors.
9. Analysis of the attraction where highest number of photos are taken.