

بانک‌های اطلاعاتی

تمرینات بخش سوم - خلیلیان

۱. طراحی فایل‌ها و شاخص‌ها در یک بانک اطلاعاتی در کدام یک از سه لایه معماری پایگاه قرار می‌گیرد؟
۲. جدولی با n ستون داریم که k ستون آن کلید اصلی است. این جدول چند کلید کاندید و چند ابر کلید دارد؟
۳. اسلوب‌های عملیاتی را در پایگاه داده‌ها نام ببرید و کمی توضیح دهید.
۴. فرض کنید دو رابطه زیر را در اختیار داریم و در این پایگاه داده، هر کارمند می‌تواند در بیش از یک پروژه کار کند. در این صورت الف) کلید کاندید هر یک از رابطه‌ها چیست؟ ب) کدام یک از دو رابطه غیر نرمال است؟

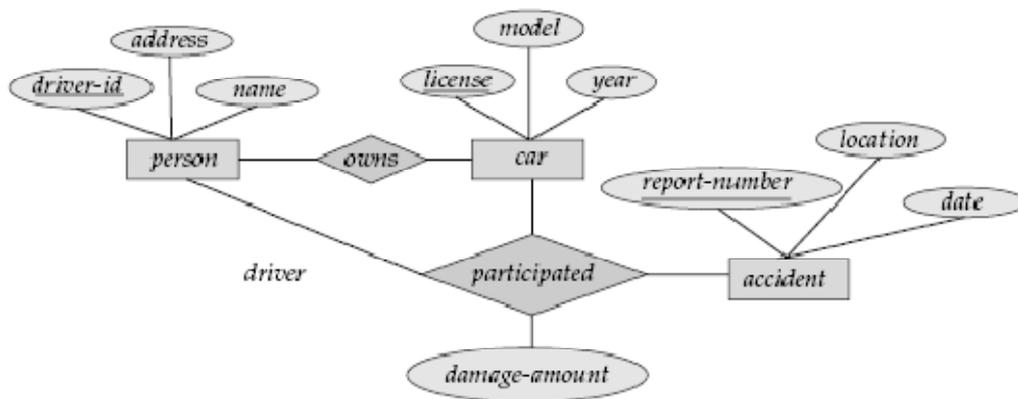
EMP(E#, ENAME, PROJECTS)

PROJECTS(PROJ#, HOURS)

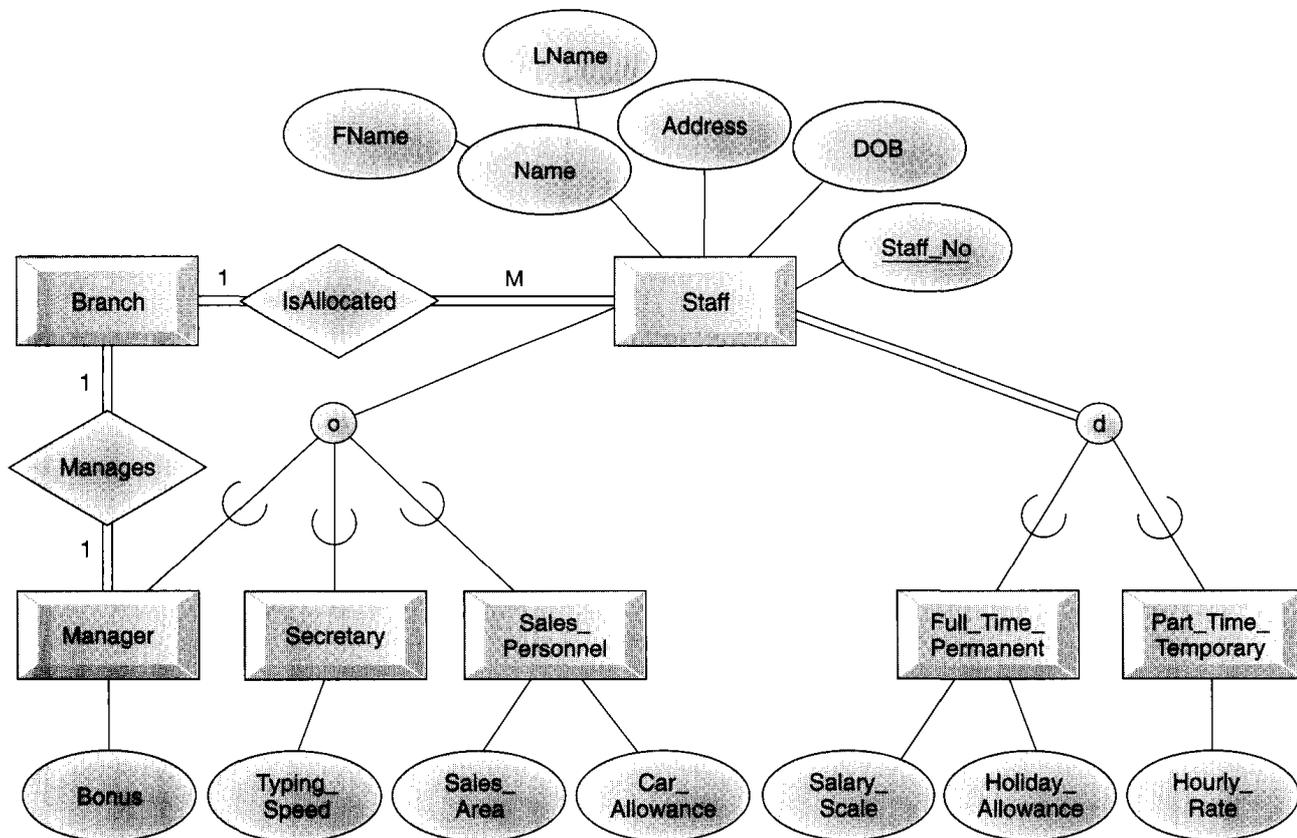
۵. معرفی کلیدهای خارجی به سیستم چه دلیلی دارد؟

۶. برای نمودارهای ER داده شده، طراحی بالا به پایین انجام داده و رابطه‌های نرمال را به دست آورید. چندی ارتباطها را به دلخواه تعیین کنید.

الف)

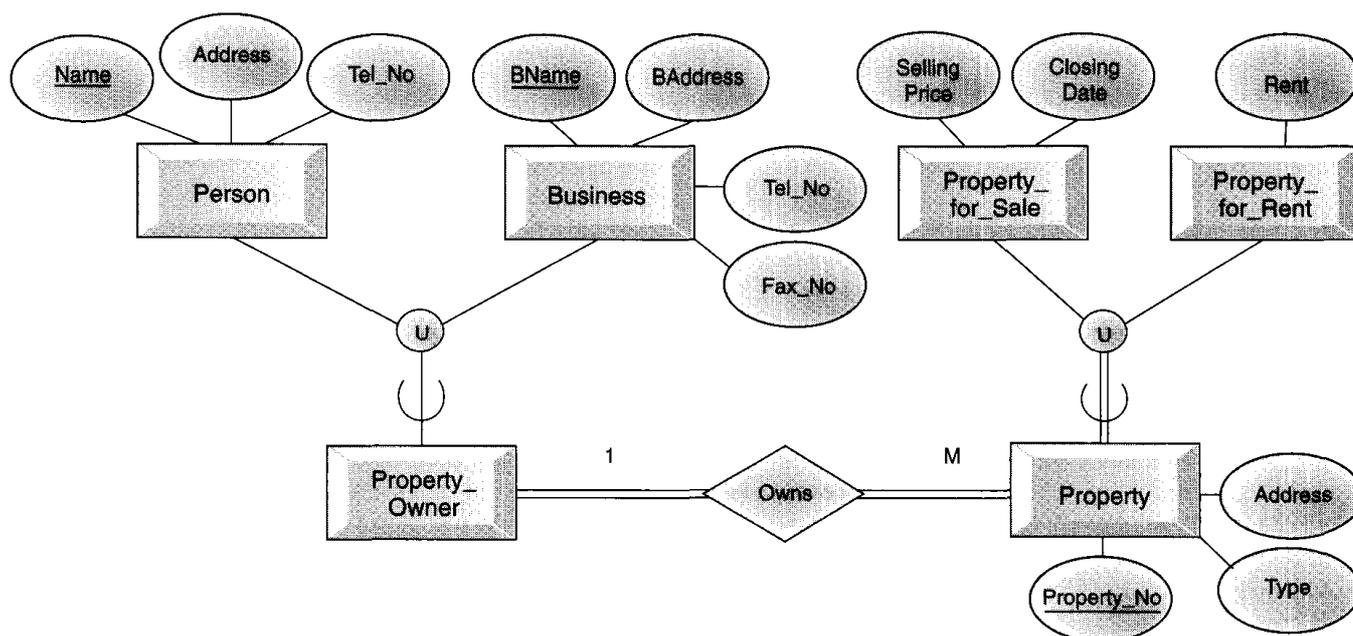


ب)



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۷. برای سناریوی داده شده، موجودیت‌ها، صفات و ارتباطات را به‌دست آورده و نمودار EER را رسم نمایید.

1. DreamHome has branch offices in various cities throughout the country. Each branch office is allocated members of staff and a manager to manage the operations of the office. The information to be held on the branch office includes a unique branch number, address (street, area, city, postcode), telephone number, fax number, and the name of the member of staff who is currently responsible for the management of the office. Additional information is held on each manager. This includes the date that a manager assumed his or her position at the current branch office, the car allowance, and the monthly bonus payment based upon his or her performances in the property for rent market.
2. The information stored on each member of staff includes staff number, name (first and last name), address, telephone number, sex, date of birth, national insurance number (NIN), position, salary, and the date the member of staff joined the DreamHome company. The staff number is unique across all branches of the company. When possible, the details of the next-of-kin of staff members are stored. The information to be stored on each next-of-kin includes name, relationship to the member of staff, address, and telephone number. Only the details of a single next-of-kin are held for a member of staff.
3. Members of staff with the role of Supervisor are responsible for day-to-day activities of an allocated group of staff. Not all members of staff are assigned to a supervisor.
4. Each branch office has property for rent. The information stored on each property includes property number, address (street, area, city, postcode), type, number of rooms, monthly rent, and the number, name, and address of the property owner, (whether private or business owner). The property number is unique across all branch offices. Each property for rent is allocated to a member of staff, who oversees the management of the property.
5. The details of owners of property are also stored. There are two main types of property owner: private owners and business owners. The information stored on private owners includes owner number, name (first and last name), address, and telephone number. The information stored on business owners includes owner number, name of business, type of business, address, telephone number, and contact name. The owner number is unique for each business or private property owner across all DreamHome branches.
6. Clients interested in viewing and renting property are called renters by the company. A prospective renter calls at a particular branch office where they may request to view various properties. The information stored on each viewing includes the name and address of the renter, the number and address of the property, the date of viewing, and any comments made by the renter regarding the suitability or otherwise of the property. A renter may view many properties.

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7. The information stored on renters includes the renter number, name (first and last name), address, telephone number, preferred type of accommodation, and the maximum rent the renter is prepared to pay. The renter number is unique across all DreamHome branches.
8. When a property is rented out, a rental agreement is drawn up between the renter and the property. The information detailed on the rental agreement includes the rental number, renter number, name and address, the property number, and address, the monthly rent, and the date the rental period is to start and finish.
9. When required, the details of properties for rent are placed in adverts, which are displayed in local and national newspapers. The information stored on each advert includes the property number, address, and type, and the date of the advert, the name of the newspaper, and the cost of the advert. The information stored on each newspaper includes the newspaper name, address, telephone number, fax number, and contact name.

۸. با استفاده از روش طراحی بالا به پایین، نمودار ER داده شده را به تعدادی رابطه نرمال تبدیل کنید.

