

Basic Tasks

1/ a. Candidate Key

Candidate Key is a field or combination of fields in a relational database that uniquely identifies each row in a table, And contains no extra attributes. A table can have multiple Candidate Keys, but only one of them is selected as the Primary Key to uniquely identify the record.

b. Composite Key

A composite key is a candidate key that consists of two or more attributes. In a database, you can use a composite key to uniquely identify a record in a table when a single attribute can't uniquely identify a record.

c. Foreign Key

A Foreign Key is a field used to establish a link between two tables. A table's foreign key is a reference to another table's primary key or candidate key. Foreign keys are used to maintain the referential integrity between tables, ensuring that the data in one table is consistent with the data in another.

d. Functional Dependency

Functional dependency describes how the value of one property or set of properties determines the value of another. If the value of the attribute X uniquely determines the value of the attribute Y, then the Y function is said to be dependent on X and denoted as: $X \rightarrow Y$

2/Each row in the table is called a tuple,each column is an attribute,the tuple contains data corresponding to a particular entity,and the attribute describes a feature of the tuple.Each table must have a primary key,which is the unique combination of attributes in the table that identifies each tuple.

Medium Tasks

4/ a.INSERT ANOMALIES employeeNO is missing

b.DELETE ANOMALIES have same depNO with others

c.UPDATA and INSERT and DELETE ANOMALIES may affect other employees

5/ a/

b/

| | | | | |
|------|-----|--------|-----------------------|--------|
| 4633 | 526 | Smiths | 12 Dee View, Aberdeen | 16-Jul |
|------|-----|--------|-----------------------|--------|

| Order No. | Acc. No. | Customer | Address | Date |
|-----------|----------|----------------|-------------------------|--------|
| 7823 | 178 | Daisy's Café | 27 Bay Drive, Cove | 16-Jul |
| 7823 | 178 | Daisy's Café | 27 Bay Drive, Cove | 16-Jul |
| 7823 | 178 | Daisy's Café | 27 Bay Drive, Cove | 16-Jul |
| 2276 | 167 | Sally's Snacks | 3 High Street, Banchory | 17-Jul |
| 2276 | 167 | Sally's Snacks | 3 High Street, Banchory | 17-Jul |
| 2276 | 167 | Sally's Snacks | 3 High Street, Banchory | 17-Jul |
| 2276 | 167 | Sally's Snacks | 3 High Street, Banchory | 17-Jul |
| 1788 | 32 | Tasty Bite | 17 Wood Place, Inch | 18-Jul |
| 1788 | 32 | Tasty Bite | 17 Wood Place, Inch | 18-Jul |

OrderNO Acc.No. Customer Address Date

OrderNo Item Qty. Price TotalCost

c/

| Order No. | Acc. No. | Customer | Address | Date | Item | Qty. | Price | Total Cost |
|-----------|----------|--------------|--------------------|--------|---------------|------|-------|------------|
| 7823 | 178 | Daisy's Café | 27 Bay Drive, Cove | 16-Jul | Bakewell Tart | 20 | 0.15 | £12.35 |
| 7823 | 178 | Daisy's Café | 27 Bay Drive, Cove | 16-Jul | Danish Pastry | 13 | 0.20 | £12.35 |
| 7823 | 178 | Daisy's Café | 27 Bay Drive, Cove | 16-Jul | Apple Pie | 45 | 0.15 | £12.35 |

OrderNo Data

OrderNo Acc.No. Customer Address

OrderNo Item Qty. Price TotalCost

d/

OrderNo Data

OrderNo Acc.No. Customer Address

Item Price

OrderNo Item Qty.

6/ a/

Patient(PatientNo, Surname, FirstName)

Admission(PatientNo, Admitted, Discharged, Ward)

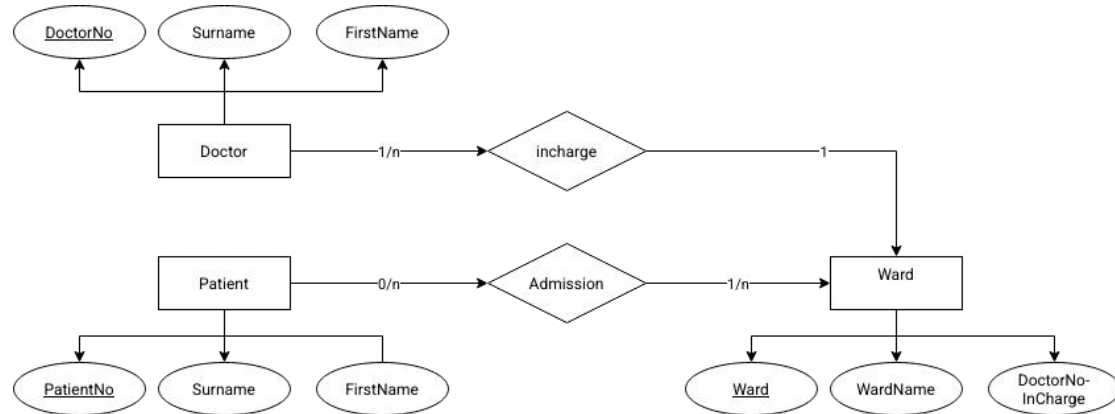
Doctor(DoctorNo, Surname, FirstName)

Ward(Ward, WardName, DoctorNo-InCharge)

b/

Patient(PatientNo, Surname, FirstName)
 Admission(PatientNo, Admitted, Discharged, Ward)
 Doctor(DoctorNo, Surname, FirstName)
 Ward(Ward, WardName, DoctorNo-InCharge)

c/



7/

| Order no. | Account no. | Customer | address | date | item |
|-----------|-------------|----------------|------------------------|------|---------------|
| 7823 | 178 | Daisy's cafe | 27 Bay Drive coventry | 16/7 | Bakewell tart |
| 7823 | 178 | Daisy's cafe | 27 Bay Drive coventry | 16/7 | Danish pastry |
| 7823 | 178 | Daisy's cafe | 27 Bay Drive coventry | 16/7 | Apple pie |
| 4633 | 526 | smiths | 12 Dee View,Aderdeen | 16/7 | butteries |
| 2276 | 167 | Sally's snacks | 3 High Street,Banchory | 17/7 | Apple pie |
| 2276 | 167 | Sally's snacks | 3 High Street,Banchory | 17/7 | Cherry pie |

| | | | | | |
|------|-----|----------------|-------------------------|------|---------------|
| 2276 | 167 | Sally's snacks | 3 High Street,Banchory | 17/7 | Steak pie |
| 2276 | 167 | Sally's snacks | 3 High Street,Banchory | 17/7 | Meringue oie |
| 1788 | 032 | Tasty bite | 17 Wood Place,Liverpool | 18/7 | Apple pie |
| 1788 | 032 | Tasty bite | 17 Wood Place,Liverpool | 18/7 | Danish pastry |

| Account no | item | quantity |
|------------|---------------|----------|
| 178 | Bakewell tart | 20 |
| 178 | Danish pastry | 13 |
| 178 | Apple pie | 45 |
| 526 | butteries | 120 |
| 167 | Apple pie | 130 |
| 167 | Cherry pie | 100 |
| 167 | Steak pie | 30 |
| 167 | Meringue pie | 20 |
| 032 | Apple pie | 15 |
| 032 | Danish pastry | 50 |

| Account no. | item | Item price |
|-------------|---------------|------------|
| 178 | Bakewell tart | 0.15 |
| 178 | Danish | 0.20 |

| | | |
|-----|---------------|------|
| | pastry | |
| 178 | Apple pie | 0.15 |
| 526 | butteries | 0.20 |
| 167 | Apple pie | 0.15 |
| 167 | Cherry pie | 0.18 |
| 167 | Steak pie | 0.50 |
| 167 | Meringue pie | 0.20 |
| 032 | Apple pie | 0.15 |
| 032 | Danish pastry | 0.20 |

| Student no. | name | course | Course duration | Module no. |
|-------------|--------------|--------|-----------------|------------|
| 1002 | Salif Keita | G701 | 4 | COF104 |
| 1002 | Salif Keita | G701 | 4 | COF118 |
| 1005 | Emma Wilson | G504 | 3 | COF105 |
| 1005 | Emma Wilson | G504 | 3 | COF118 |
| 1005 | Emma Wilson | G504 | 3 | COF120 |
| 1006 | Hong Wang | G701 | 4 | COF111 |
| 1006 | Hong Wang | G701 | 4 | COF105 |
| 1010 | Kiri Anahera | G722 | 2 | COF111 |
| 1010 | Kiri Anahera | G722 | 2 | COF105 |

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|--------|-------------|
| MODULE | MODULE NAME |
|--------|-------------|

| | |
|------|--------------------------|
| NO | |
| G701 | JAVA |
| G701 | DISTRIBUTED SYSTEMS |
| G504 | COMPUTER ARCHITECTURE |
| G504 | DISTRIBUTED SYSTEMS |
| G504 | OPERATING SYSTEMS |
| G701 | NETWORKS |
| G701 | COMPUTER ARCHITECTURE |
| G722 | NETWORKKS |
| G722 | COMPUTER ARCHITECTURE |

| | |
|-------------|----------|
| MODULE NAME | LECTURER |
|-------------|----------|

| | |
|--------------------------|--------|
| JAVA | Asimov |
| DISTRIBUTED SYSTEMS | Patel |
| COMPUTER ARCHITECTURE | Zidane |
| DISTRIBUTED SYSTEMS | Patel |
| OPERATING SYSTEMS | Brando |
| NETWORKS | Austin |
| COMPUTER ARCHITECTURE | Zidane |
| NETWORKKS | Austin |
| COMPUTER ARCHITECTURE | Zidane |