Customer

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| First\_name | Last\_name | Address | Customer\_ID\_ | Gender | Phone\_number |

Staff

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Staff\_id | Address | D.O.B | Salary | Last\_name | Phone\_num | First\_name | Part\_id\_ordered |

Appointment

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pick\_up\_time | Appointment\_id | Time\_booked | date | Car\_id | Work\_to\_do |

Account

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Last\_visit | Balance | Account\_id | Customer\_id | Customer\_account |

Parts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Part\_id | Cost | Part\_name | Description | quantity | Staff\_ID |

Car

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Car\_id | Make | Model | Year | Appointment\_id | Customer\_ID |

Transaction

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | amount | Date | E\_account\_id | Transaction\_number |

Manages

|  |  |
| --- | --- |
| Account\_ID | Staff\_ID |

Responsible For

|  |  |
| --- | --- |
| Appointment\_ID | Staff\_ID |

Needs

|  |  |
| --- | --- |
| Part\_name | Appointment\_ID |

4. Normalization

CUSTOMER

1NF: CUSTOMER is not in 1NF because it has the Multivalued Attribute phone\_number. This should be eliminated by dividing it into the following relations:

CUSTOMER (customer\_ID, last\_name, first\_name, address, gender)

CUSTOMERPHONE (customer\_ID, phone\_number)

2NF: Both relations are in 2NF, in relations CUSTOMER AND CUSTOMER PHONE all attributes partially depend on the primary key customer\_ID

3NF: Both relations are in 3NF as there are the nonprime attributes last\_name, first\_name, address and gender have transitive dependency on the primary key, customer\_ID.

BCNF: Both relations are in BCNF.

CAR

1NF: CAR is 1NF

2NF: CAR is in 2NF

3NF: CAR is not in 3NF because nonprime attribute model depends on nonprime attribute make. To make CAR 3NF this should be eliminated by the following:

CAR (car\_id, make, year)

CARTYPE (make, model)