**CS579 A1**

**Database Management**

PROJECT PART 1

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**Entity Types:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Description | Attribute | | | |
| Name | Description | Multivalued | Derived |
| HEADQUARTER | The name of the customer | phone\_no  name {K}  address | NA  Primary key  NA | N N N | N N N |
| BRANCH | Branched own by headquarter | phone\_no  branch\_no {WK}  address | NA  Partial key  NA | N N N | N N N |
| ORDER | An order entity has several suborder entities | emp\_id  order\_no {K}  order\_date  order\_amount  hq\_name | NA  Primary key  NA  NA  NA | Y  N  N  N  N | N N N  N  N |
| SUBORDER | NA | to\_brnch\_store  suborder\_no{WK}  ac\_ship\_data  req\_ship\_date | Shipped to  Partial Key  Actual shipping date  Required shipping date | N N N N | N N N N |
| EMPLOYEE | Employee data of Boston Papers Company | Id {K}  name  salary  address  classification  dob | Primary key  NA  NA  NA  NA  Date of birth | N N N N N N | N N N N N N |
| PAPER | Paper type provided by Boston Papers Company | type\_no {K}  size  weight  unit\_price | Primary key  NA  NA  NA | N N N N | N N N N |

**Relationship Types:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Description | Participating Entity Type |  | Attribute |
| Name | Structural Constraint |  |
| HAS\_BRANCH | Relates branches of headquarters | Headquarter | 1, N | none |
| Branch | 1, 1 |
| ISSUE | Relates orders and headquarters | Headquarter | 0, N | none |
| Order | 1, 1 |
| HANDLED\_BY | Relates orders and employees | Order | 1, 2 | none |
| Employee | 0, 5 |
| INCLUDES | Relates suborder and papers | Suborder | 1, N | quantity, type |
| Paper | 1, N |
| CONSIST\_OF | Relates orders and suborders | Order | 1, N | none |
| Suborder | 1, 1 |
| SHIPPED\_TO | Related branch and suborder | Suborder | 1, 1 | none |
| Branch | 0, N |

Assumptions:

1. Branch can be under one and only one Headquarter.
2. Headquarter can issue any number of orders.
3. One suborder can be associated to one and only one order.
4. One type of paper can be included in many suborders.

**ER Diagram:**

![Diagram

Description automatically generated]()