800 1222·2022 ANNI
UNIVERSITÀ DEGLI STUDI DI PADOVA
DIPARTIMENTO DI INGEGNERIA DELL'INFORMAZIONE

Foundations of Databases A.Y. 2022-2023

Homework 3 – Physical Design

Master Degree in Computer Engineering
Master Degree in Cybersecurity
Master Degree in ICT for Internet and Multimedia

Deadline: December 17, 2022

Team acronym	prime	
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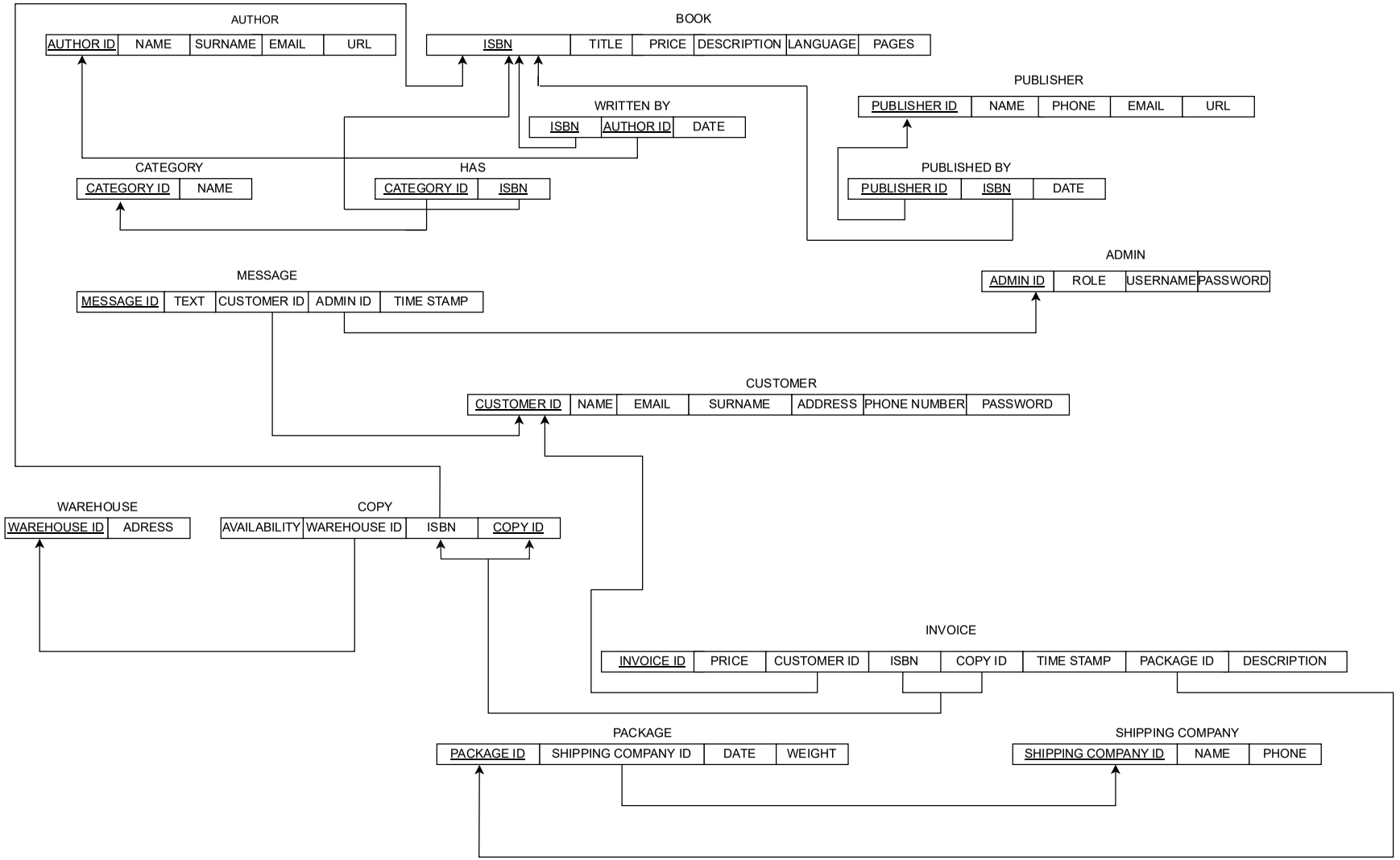
Variations to the Relational Schema

Those with primary keys are underlined.
'Lastname' column added to 'Author' table.
Replaced the column of the 'Book' table 'BookID' to 'ISBN'.
Corrected typos in all schematics.
'Manage' table completely removed.
'Password' column added to Admin table.
The 'Stock' table has been removed, the columns in this table have been transferred to the Warehouse and Copy tables.
Relations have been fixed.


AUTHOR
AUTHOR ID
NAME
SURNAME
EMAIL
URL
BOOK
ISBN
TITLE
PRICE
DESCRIPTION
LANGUAGE
PAGES
PUBLISHER
PUBLISHER ID
NAME
PHONE
EMAIL
URL
WRITTEN BY
ISBN
AUTHOR ID
DATE
CATEGORY
CATEGORY ID
NAME
HAS
CATEGORY ID
ISBN
PUBLISHED BY
PUBLISHER ID
ISBN
DATE
ADMIN
ADMIN ID
ROLE
USERNAME
PASSWORD
MESSAGE
MESSAGE ID
TEXT
CUSTOMER ID
ADMIN ID
TIME STAMP
CUSTOMER
CUSTOMER ID
NAME
EMAIL
SURNAME
ADDRESS
PHONE NUMBER
PASSWORD
WAREHOUSE
WAREHOUSE ID
ADRESS
COPY
AVAILABILITY
WAREHOUSE ID
ISBN
COPY ID
INVOICE
INVOICE ID
PRICE
CUSTOMER ID
ISBN
COPY ID
TIME STAMP
PACKAGE ID
DESCRIPTION
PACKAGE
PACKAGE ID
SHIPPING COMPANY ID
DATE
WEIGHT
SHIPPING COMPANY
SHIPPING COMPANY ID
NAME
PHONE

Physical Schema

```
--
-- PostgreSQL database dump
--

-- Dumped from database version 15.1
-- Dumped by pg_dump version 15.1

-- Started on 2022-12-16 19:43:54

SET statement_timeout = 0;
SET lock_timeout = 0;
SET idle_in_transaction_session_timeout = 0;
SET client_encoding = 'UTF8';
SET standard_conforming_strings = on;
SELECT pg_catalog.set_config('search_path', '', false);
SET check_function_bodies = false;
SET xmloption = content;
SET client_min_messages = warning;
SET row_security = off;

--
-- TOC entry 6 (class 2615 OID 25467)
-- Name: Book_Store; Type: SCHEMA; Schema: -; Owner: postgres
--

CREATE SCHEMA "Book_Store";


ALTER SCHEMA "Book_Store" OWNER TO postgres;

SET default_tablespace = '';

SET default_table_access_method = heap;

--
-- TOC entry 215 (class 1259 OID 25468)
-- Name: Admin; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Admin" (
    "Admin_ID" integer NOT NULL,
    "Role" text NOT NULL,
    "Username" text NOT NULL,
    "Password" text NOT NULL
);


ALTER TABLE "Book_Store"."Admin" OWNER TO postgres;

--
-- TOC entry 216 (class 1259 OID 25473)
-- Name: Admin_Admin ID _seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
```

```
--

CREATE SEQUENCE "Book_Store"."Admin_Admin ID _seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Admin_Admin ID _seq" OWNER TO postgres;

--
-- TOC entry 3455 (class 0 OID 0)
-- Dependencies: 216
-- Name: Admin_Admin ID _seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner: postgres
--

ALTER SEQUENCE "Book_Store"."Admin_Admin ID _seq" OWNED BY "Book_Store"."Admin"."Admin_ID";


--
-- TOC entry 217 (class 1259 OID 25474)
-- Name: Author; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Author" (
    "Author_ID" integer NOT NULL,
    "Name" text NOT NULL,
    "Surname" text,
    "URL" text,
    "Email" text
);


ALTER TABLE "Book_Store"."Author" OWNER TO postgres;

--
-- TOC entry 218 (class 1259 OID 25479)
-- Name: Author_Author ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Author_Author ID_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Author_Author ID_seq" OWNER TO postgres;
```

```
--
-- TOC entry 3456 (class 0 OID 0)
-- Dependencies: 218
-- Name: Author_Author ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner: postgres
--

ALTER SEQUENCE "Book_Store"."Author_Author ID_seq" OWNED BY "Book_Store"."Author"."Author_ID"
    ;


--
-- TOC entry 219 (class 1259 OID 25480)
-- Name: Book; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Book" (
    "Title" text NOT NULL,
    "Price" numeric NOT NULL,
    "Pages" integer NOT NULL,
    "Language" text NOT NULL,
    "Description" text,
    "ISBN" text NOT NULL
);


ALTER TABLE "Book_Store"."Book" OWNER TO postgres;

--
-- TOC entry 220 (class 1259 OID 25485)
-- Name: Category; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Category" (
    "Category_ID" integer NOT NULL,
    "Name" text NOT NULL
);


ALTER TABLE "Book_Store"."Category" OWNER TO postgres;

--
-- TOC entry 221 (class 1259 OID 25490)
-- Name: Category_Category_ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Category_Category_ID_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;
```

```
ALTER TABLE "Book_Store"."Category_Category_ID_seq" OWNER TO postgres;

--
-- TOC entry 3457 (class 0 OID 0)
-- Dependencies: 221
-- Name: Category_Category_ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner:
    postgres
--

ALTER SEQUENCE "Book_Store"."Category_Category_ID_seq" OWNED BY "Book_Store"."Category"."
    Category_ID";


--
-- TOC entry 222 (class 1259 OID 25491)
-- Name: Copy; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Copy" (
    "Copy_ID" integer NOT NULL,
    "ISBN" text NOT NULL,
    "Warehouse_ID" integer NOT NULL,
    "Availibility" boolean NOT NULL
);


ALTER TABLE "Book_Store"."Copy" OWNER TO postgres;

--
-- TOC entry 223 (class 1259 OID 25496)
-- Name: Copy_Book_ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Copy_Book_ID_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Copy_Book_ID_seq" OWNER TO postgres;

--
-- TOC entry 3458 (class 0 OID 0)
-- Dependencies: 223
-- Name: Copy_Book_ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner: postgres
--

ALTER SEQUENCE "Book_Store"."Copy_Book_ID_seq" OWNED BY "Book_Store"."Copy"."Copy_ID";


--
```

```
-- TOC entry 224 (class 1259 OID 25497)
-- Name: Customer; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Customer" (
    "Customer_ID" integer NOT NULL,
    "Name" text NOT NULL,
    "Address" text NOT NULL,
    "Email" text NOT NULL,
    "Surname" text NOT NULL,
    "Password" text NOT NULL,
    "Phone" text
);


ALTER TABLE "Book_Store"."Customer" OWNER TO postgres;

--
-- TOC entry 225 (class 1259 OID 25502)
-- Name: Customer_Customer ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Customer_Customer ID_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Customer_Customer ID_seq" OWNER TO postgres;

--
-- TOC entry 3459 (class 0 OID 0)
-- Dependencies: 225
-- Name: Customer_Customer ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner:
    postgres
--

ALTER SEQUENCE "Book_Store"."Customer_Customer ID_seq" OWNED BY "Book_Store"."Customer"."
    Customer_ID";


--
-- TOC entry 226 (class 1259 OID 25503)
-- Name: Has; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Has" (
    "Category_ID" integer NOT NULL,
    "ISBN" text NOT NULL
);
```

```
ALTER TABLE "Book_Store"."Has" OWNER TO postgres;

--
-- TOC entry 227 (class 1259 OID 25508)
-- Name: Has_Category ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Has_Category ID_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Has_Category ID_seq" OWNER TO postgres;

--
-- TOC entry 3460 (class 0 OID 0)
-- Dependencies: 227
-- Name: Has_Category ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner: postgres
--

ALTER SEQUENCE "Book_Store"."Has_Category ID_seq" OWNED BY "Book_Store"."Has"."Category_ID";


--
-- TOC entry 228 (class 1259 OID 25509)
-- Name: Invoice; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Invoice" (
    "Invoice_ID" integer NOT NULL,
    "Price" numeric NOT NULL,
    "Description" text,
    "Customer_ID" integer NOT NULL,
    "Timestamp" timestamp without time zone NOT NULL,
    "ISBN" text NOT NULL,
    "Copy_ID" integer NOT NULL,
    "Package_ID" integer NOT NULL
);


ALTER TABLE "Book_Store"."Invoice" OWNER TO postgres;

--
-- TOC entry 229 (class 1259 OID 25514)
-- Name: Invoice_Customer ID _seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Invoice_Customer ID _seq"
    AS integer
```

```
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Invoice_Customer ID _seq" OWNER TO postgres;

--
-- TOC entry 3461 (class 0 OID 0)
-- Dependencies: 229
-- Name: Invoice_Customer ID _seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner:
    postgres
--

ALTER SEQUENCE "Book_Store"."Invoice_Customer ID _seq" OWNED BY "Book_Store"."Invoice"."
    Customer_ID";


--
-- TOC entry 230 (class 1259 OID 25515)
-- Name: Invoice_Invoice ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Invoice_Invoice ID_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Invoice_Invoice ID_seq" OWNER TO postgres;

--
-- TOC entry 3462 (class 0 OID 0)
-- Dependencies: 230
-- Name: Invoice_Invoice ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner: postgres
--

ALTER SEQUENCE "Book_Store"."Invoice_Invoice ID_seq" OWNED BY "Book_Store"."Invoice"."
    Invoice_ID";


--
-- TOC entry 231 (class 1259 OID 25516)
-- Name: Message; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Message" (
    "Message_ID" integer NOT NULL,
    "Text" text NOT NULL,
```

```
    "Admin_ID" integer NOT NULL,
    "Customer_ID" integer NOT NULL,
    "timestamp" time without time zone NOT NULL
);


ALTER TABLE "Book_Store"."Message" OWNER TO postgres;

--
-- TOC entry 232 (class 1259 OID 25521)
-- Name: Message_Admin ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Message_Admin ID_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Message_Admin ID_seq" OWNER TO postgres;

--
-- TOC entry 3463 (class 0 OID 0)
-- Dependencies: 232
-- Name: Message_Admin ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner: postgres
--

ALTER SEQUENCE "Book_Store"."Message_Admin ID_seq" OWNED BY "Book_Store"."Message"."Admin_ID"
    ;


--
-- TOC entry 233 (class 1259 OID 25522)
-- Name: Message_Customer ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Message_Customer ID_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Message_Customer ID_seq" OWNER TO postgres;

--
-- TOC entry 3464 (class 0 OID 0)
-- Dependencies: 233
```

```
-- Name: Message_Customer ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner:
    postgres
--

ALTER SEQUENCE "Book_Store"."Message_Customer ID_seq" OWNED BY "Book_Store"."Message"."
    Customer_ID";


--
-- TOC entry 234 (class 1259 OID 25523)
-- Name: Message_ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Message_ID_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Message_ID_seq" OWNER TO postgres;

--
-- TOC entry 3465 (class 0 OID 0)
-- Dependencies: 234
-- Name: Message_ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner: postgres
--

ALTER SEQUENCE "Book_Store"."Message_ID_seq" OWNED BY "Book_Store"."Message"."Message_ID";


--
-- TOC entry 235 (class 1259 OID 25524)
-- Name: Package; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Package" (
    "Package_ID" integer NOT NULL,
    weight numeric NOT NULL,
    "Shipping_Company_ID" integer NOT NULL,
    "Date" date NOT NULL
);


ALTER TABLE "Book_Store"."Package" OWNER TO postgres;

--
-- TOC entry 236 (class 1259 OID 25529)
-- Name: Package_Package ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Package_Package ID_seq"
```

```
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Package_Package ID_seq" OWNER TO postgres;

--
-- TOC entry 3466 (class 0 OID 0)
-- Dependencies: 236
-- Name: Package_Package ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner: postgres
--

ALTER SEQUENCE "Book_Store"."Package_Package ID_seq" OWNED BY "Book_Store"."Package"."
    Package_ID";


--
-- TOC entry 237 (class 1259 OID 25530)
-- Name: Package_Shipping Company ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Package_Shipping Company ID_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Package_Shipping Company ID_seq" OWNER TO postgres;

--
-- TOC entry 3467 (class 0 OID 0)
-- Dependencies: 237
-- Name: Package_Shipping Company ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner:
     postgres
--

ALTER SEQUENCE "Book_Store"."Package_Shipping Company ID_seq" OWNED BY "Book_Store"."Package"
    ."Shipping_Company_ID";


--
-- TOC entry 238 (class 1259 OID 25531)
-- Name: Published_by; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Published_by" (
    "Publisher_ID" integer NOT NULL,
```

```
    "Date" date NOT NULL,
    "ISBN" text NOT NULL
);


ALTER TABLE "Book_Store"."Published_by" OWNER TO postgres;

--
-- TOC entry 239 (class 1259 OID 25536)
-- Name: Published by_Publisher ID _seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Published by_Publisher ID _seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Published by_Publisher ID _seq" OWNER TO postgres;

--
-- TOC entry 3468 (class 0 OID 0)
-- Dependencies: 239
-- Name: Published by_Publisher ID _seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner:
    postgres
--

ALTER SEQUENCE "Book_Store"."Published by_Publisher ID _seq" OWNED BY "Book_Store"."
    Published_by"."Publisher_ID";


--
-- TOC entry 240 (class 1259 OID 25537)
-- Name: Publisher; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Publisher" (
    "Publisher_ID" integer NOT NULL,
    "Name" text NOT NULL,
    "URL" text,
    "Email" text,
    "Phone" text
);


ALTER TABLE "Book_Store"."Publisher" OWNER TO postgres;

--
-- TOC entry 241 (class 1259 OID 25542)
-- Name: Publisher_Publisher ID_seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--
```

```
CREATE SEQUENCE "Book_Store"."Publisher_Publisher ID_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Publisher_Publisher ID_seq" OWNER TO postgres;

--
-- TOC entry 3469 (class 0 OID 0)
-- Dependencies: 241
-- Name: Publisher_Publisher ID_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner:
    postgres
--

ALTER SEQUENCE "Book_Store"."Publisher_Publisher ID_seq" OWNED BY "Book_Store"."Publisher"."
    Publisher_ID";


--
-- TOC entry 242 (class 1259 OID 25543)
-- Name: ShippingCompany; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."ShippingCompany" (
    "Shipping_Company_ID" integer NOT NULL,
    "Name" text NOT NULL,
    "Phone" text
);


ALTER TABLE "Book_Store"."ShippingCompany" OWNER TO postgres;

--
-- TOC entry 243 (class 1259 OID 25548)
-- Name: ShippingCompany_ShippingCompany_seq; Type: SEQUENCE; Schema: Book_Store; Owner:
    postgres
--

CREATE SEQUENCE "Book_Store"."ShippingCompany_ShippingCompany_seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."ShippingCompany_ShippingCompany_seq" OWNER TO postgres;
```

```
--
-- TOC entry 3470 (class 0 OID 0)
-- Dependencies: 243
-- Name: ShippingCompany_ShippingCompany_seq; Type: SEQUENCE OWNED BY; Schema: Book_Store;
    Owner: postgres
--

ALTER SEQUENCE "Book_Store"."ShippingCompany_ShippingCompany_seq" OWNED BY "Book_Store"."
    ShippingCompany"."Shipping_Company_ID";


--
-- TOC entry 244 (class 1259 OID 25549)
-- Name: Warehouse; Type: TABLE; Schema: Book_Store; Owner: postgres
--

CREATE TABLE "Book_Store"."Warehouse" (
    "Warehouse_ID" integer NOT NULL,
    "Address" text NOT NULL
);


ALTER TABLE "Book_Store"."Warehouse" OWNER TO postgres;

--
-- TOC entry 245 (class 1259 OID 25554)
-- Name: Warehouse_Warehouse ID _seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Warehouse_Warehouse ID _seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Warehouse_Warehouse ID _seq" OWNER TO postgres;

--
-- TOC entry 3471 (class 0 OID 0)
-- Dependencies: 245
-- Name: Warehouse_Warehouse ID _seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner:
    postgres
--

ALTER SEQUENCE "Book_Store"."Warehouse_Warehouse ID _seq" OWNED BY "Book_Store"."Warehouse"."
    Warehouse_ID";


--
-- TOC entry 246 (class 1259 OID 25555)
-- Name: Written_by; Type: TABLE; Schema: Book_Store; Owner: postgres
```

```
--

CREATE TABLE "Book_Store"."Written_by" (
    "Author_ID" integer NOT NULL,
    "Date" date,
    "ISBN" text NOT NULL
);


ALTER TABLE "Book_Store"."Written_by" OWNER TO postgres;

--
-- TOC entry 247 (class 1259 OID 25560)
-- Name: Written by_Author ID _seq; Type: SEQUENCE; Schema: Book_Store; Owner: postgres
--

CREATE SEQUENCE "Book_Store"."Written by_Author ID _seq"
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER TABLE "Book_Store"."Written by_Author ID _seq" OWNER TO postgres;

--
-- TOC entry 3472 (class 0 OID 0)
-- Dependencies: 247
-- Name: Written by_Author ID _seq; Type: SEQUENCE OWNED BY; Schema: Book_Store; Owner:
    postgres
--

ALTER SEQUENCE "Book_Store"."Written by_Author ID _seq" OWNED BY "Book_Store"."Written_by"."
    Author_ID";


--
-- TOC entry 3247 (class 2604 OID 25561)
-- Name: Admin Admin_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Admin" ALTER COLUMN "Admin_ID" SET DEFAULT nextval('"
    Book_Store"."Admin_Admin ID _seq"'::regclass);


--
-- TOC entry 3248 (class 2604 OID 25562)
-- Name: Author Author_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Author" ALTER COLUMN "Author_ID" SET DEFAULT nextval('"
    Book_Store"."Author_Author ID_seq"'::regclass);
```

```
--
-- TOC entry 3249 (class 2604 OID 25563)
-- Name: Category Category_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Category" ALTER COLUMN "Category_ID" SET DEFAULT nextval('"
    Book_Store"."Category_Category_ID_seq"'::regclass);


--
-- TOC entry 3250 (class 2604 OID 25564)
-- Name: Copy Copy_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Copy" ALTER COLUMN "Copy_ID" SET DEFAULT nextval('"Book_Store
    "."Copy_Book_ID_seq"'::regclass);


--
-- TOC entry 3251 (class 2604 OID 25565)
-- Name: Customer Customer_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Customer" ALTER COLUMN "Customer_ID" SET DEFAULT nextval('"
    Book_Store"."Customer_Customer ID_seq"'::regclass);


--
-- TOC entry 3252 (class 2604 OID 25566)
-- Name: Invoice Invoice_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Invoice" ALTER COLUMN "Invoice_ID" SET DEFAULT nextval('"
    Book_Store"."Invoice_Invoice ID_seq"'::regclass);


--
-- TOC entry 3253 (class 2604 OID 25567)
-- Name: Message Message_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Message" ALTER COLUMN "Message_ID" SET DEFAULT nextval('"
    Book_Store"."Message_ID_seq"'::regclass);


--
-- TOC entry 3254 (class 2604 OID 25568)
-- Name: Message Admin_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Message" ALTER COLUMN "Admin_ID" SET DEFAULT nextval('"
    Book_Store"."Message_Admin ID_seq"'::regclass);
```

```
--
-- TOC entry 3255 (class 2604 OID 25569)
-- Name: Message Customer_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Message" ALTER COLUMN "Customer_ID" SET DEFAULT nextval('"
    Book_Store"."Message_Customer ID_seq"'::regclass);


--
-- TOC entry 3256 (class 2604 OID 25570)
-- Name: Package Package_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Package" ALTER COLUMN "Package_ID" SET DEFAULT nextval('"
    Book_Store"."Package_Package ID_seq"'::regclass);


--
-- TOC entry 3257 (class 2604 OID 25571)
-- Name: Package Shipping_Company_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Package" ALTER COLUMN "Shipping_Company_ID" SET DEFAULT
    nextval('"Book_Store"."Package_Shipping Company ID_seq"'::regclass);


--
-- TOC entry 3258 (class 2604 OID 25572)
-- Name: Published_by Publisher_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Published_by" ALTER COLUMN "Publisher_ID" SET DEFAULT nextval(
    '"Book_Store"."Published by_Publisher ID _seq"'::regclass);


--
-- TOC entry 3259 (class 2604 OID 25573)
-- Name: Publisher Publisher_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Publisher" ALTER COLUMN "Publisher_ID" SET DEFAULT nextval('"
    Book_Store"."Publisher_Publisher ID_seq"'::regclass);


--
-- TOC entry 3260 (class 2604 OID 25574)
-- Name: ShippingCompany Shipping_Company_ID; Type: DEFAULT; Schema: Book_Store; Owner:
    postgres
--
```

```
ALTER TABLE ONLY "Book_Store"."ShippingCompany" ALTER COLUMN "Shipping_Company_ID" SET
    DEFAULT nextval('"Book_Store"."ShippingCompany_ShippingCompany_seq"'::regclass);


--
-- TOC entry 3261 (class 2604 OID 25575)
-- Name: Warehouse Warehouse_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Warehouse" ALTER COLUMN "Warehouse_ID" SET DEFAULT nextval('"
    Book_Store"."Warehouse_Warehouse ID _seq"'::regclass);


--
-- TOC entry 3262 (class 2604 OID 25576)
-- Name: Written_by Author_ID; Type: DEFAULT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Written_by" ALTER COLUMN "Author_ID" SET DEFAULT nextval('"
    Book_Store"."Written by_Author ID _seq"'::regclass);


--
-- TOC entry 3264 (class 2606 OID 25578)
-- Name: Admin Admin_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Admin"
    ADD CONSTRAINT "Admin_pkey" PRIMARY KEY ("Admin_ID");


--
-- TOC entry 3266 (class 2606 OID 25580)
-- Name: Author Author_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Author"
    ADD CONSTRAINT "Author_pkey" PRIMARY KEY ("Author_ID");


--
-- TOC entry 3268 (class 2606 OID 25582)
-- Name: Book Book_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Book"
    ADD CONSTRAINT "Book_pkey" PRIMARY KEY ("ISBN");


--
-- TOC entry 3270 (class 2606 OID 25584)
-- Name: Category Category_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--
```

```
ALTER TABLE ONLY "Book_Store"."Category"
    ADD CONSTRAINT "Category_pkey" PRIMARY KEY ("Category_ID");


--
-- TOC entry 3272 (class 2606 OID 25586)
-- Name: Copy Copy_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Copy"
    ADD CONSTRAINT "Copy_pkey" PRIMARY KEY ("Copy_ID");


--
-- TOC entry 3274 (class 2606 OID 25588)
-- Name: Customer Customer_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Customer"
    ADD CONSTRAINT "Customer_pkey" PRIMARY KEY ("Customer_ID");


--
-- TOC entry 3276 (class 2606 OID 25590)
-- Name: Has Has_Pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Has"
    ADD CONSTRAINT "Has_Pkey" PRIMARY KEY ("Category_ID", "ISBN");


--
-- TOC entry 3278 (class 2606 OID 25592)
-- Name: Invoice Invoice_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Invoice"
    ADD CONSTRAINT "Invoice_pkey" PRIMARY KEY ("Invoice_ID");


--
-- TOC entry 3280 (class 2606 OID 25594)
-- Name: Message Message_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Message"
    ADD CONSTRAINT "Message_pkey" PRIMARY KEY ("Message_ID");


--
-- TOC entry 3282 (class 2606 OID 25596)
-- Name: Package Package_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--
```

```
ALTER TABLE ONLY "Book_Store"."Package"
    ADD CONSTRAINT "Package_pkey" PRIMARY KEY ("Package_ID");


--
-- TOC entry 3284 (class 2606 OID 25598)
-- Name: Published_by Publishby_Pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Published_by"
    ADD CONSTRAINT "Publishby_Pkey" PRIMARY KEY ("ISBN", "Publisher_ID");


--
-- TOC entry 3286 (class 2606 OID 25600)
-- Name: Publisher Publisher_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Publisher"
    ADD CONSTRAINT "Publisher_pkey" PRIMARY KEY ("Publisher_ID");


--
-- TOC entry 3288 (class 2606 OID 25602)
-- Name: ShippingCompany ShippingCompany_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner:
    postgres
--

ALTER TABLE ONLY "Book_Store"."ShippingCompany"
    ADD CONSTRAINT "ShippingCompany_pkey" PRIMARY KEY ("Shipping_Company_ID");


--
-- TOC entry 3290 (class 2606 OID 25604)
-- Name: Warehouse Warehouse_pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Warehouse"
    ADD CONSTRAINT "Warehouse_pkey" PRIMARY KEY ("Warehouse_ID");


--
-- TOC entry 3292 (class 2606 OID 25606)
-- Name: Written_by Written_by_Pkey; Type: CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Written_by"
    ADD CONSTRAINT "Written_by_Pkey" PRIMARY KEY ("ISBN", "Author_ID");


--
-- TOC entry 3293 (class 2606 OID 25607)
-- Name: Copy Copy_Fkey1; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--
```

```
ALTER TABLE ONLY "Book_Store"."Copy"
    ADD CONSTRAINT "Copy_Fkey1" FOREIGN KEY ("ISBN") REFERENCES "Book_Store"."Book"("ISBN")
        ON UPDATE CASCADE ON DELETE CASCADE;


--
-- TOC entry 3294 (class 2606 OID 25612)
-- Name: Copy Copy_Fkey2; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Copy"
    ADD CONSTRAINT "Copy_Fkey2" FOREIGN KEY ("Warehouse_ID") REFERENCES "Book_Store"."
        Warehouse"("Warehouse_ID");


--
-- TOC entry 3295 (class 2606 OID 25617)
-- Name: Has Has_Fkey1; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Has"
    ADD CONSTRAINT "Has_Fkey1" FOREIGN KEY ("Category_ID") REFERENCES "Book_Store"."Category"
        ("Category_ID") NOT VALID;


--
-- TOC entry 3296 (class 2606 OID 25622)
-- Name: Has Has_Fkey2; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Has"
    ADD CONSTRAINT "Has_Fkey2" FOREIGN KEY ("ISBN") REFERENCES "Book_Store"."Book"("ISBN")
        NOT VALID;


--
-- TOC entry 3297 (class 2606 OID 25627)
-- Name: Invoice Invoice_Fkey1; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Invoice"
    ADD CONSTRAINT "Invoice_Fkey1" FOREIGN KEY ("ISBN") REFERENCES "Book_Store"."Book"("ISBN"
        ) NOT VALID;


--
-- TOC entry 3298 (class 2606 OID 25632)
-- Name: Invoice Invoice_Fkey2; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Invoice"
    ADD CONSTRAINT "Invoice_Fkey2" FOREIGN KEY ("Copy_ID") REFERENCES "Book_Store"."Copy"("
        Copy_ID") NOT VALID;
```

```
--
-- TOC entry 3299 (class 2606 OID 25637)
-- Name: Invoice Invoice_Fkey3; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Invoice"
    ADD CONSTRAINT "Invoice_Fkey3" FOREIGN KEY ("Customer_ID") REFERENCES "Book_Store"."
        Customer"("Customer_ID") NOT VALID;


--
-- TOC entry 3300 (class 2606 OID 25642)
-- Name: Invoice Invoice_Fkey4; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Invoice"
    ADD CONSTRAINT "Invoice_Fkey4" FOREIGN KEY ("Package_ID") REFERENCES "Book_Store"."
        Package"("Package_ID") NOT VALID;


--
-- TOC entry 3301 (class 2606 OID 25647)
-- Name: Message Message_Fkey; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Message"
    ADD CONSTRAINT "Message_Fkey" FOREIGN KEY ("Admin_ID") REFERENCES "Book_Store"."Admin"("
        Admin_ID");


--
-- TOC entry 3302 (class 2606 OID 25652)
-- Name: Message Message_Fkey2; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Message"
    ADD CONSTRAINT "Message_Fkey2" FOREIGN KEY ("Customer_ID") REFERENCES "Book_Store"."
        Customer"("Customer_ID");


--
-- TOC entry 3303 (class 2606 OID 25657)
-- Name: Package Package_Fkey; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Package"
    ADD CONSTRAINT "Package_Fkey" FOREIGN KEY ("Shipping_Company_ID") REFERENCES "Book_Store"
        ."ShippingCompany"("Shipping_Company_ID") NOT VALID;


--
-- TOC entry 3304 (class 2606 OID 25662)
```

```
-- Name: Published_by Publisheby_Fkey2; Type: FK CONSTRAINT; Schema: Book_Store; Owner:
    postgres
--

ALTER TABLE ONLY "Book_Store"."Published_by"
    ADD CONSTRAINT "Publisheby_Fkey2" FOREIGN KEY ("ISBN") REFERENCES "Book_Store"."Book"("
        ISBN") NOT VALID;


--
-- TOC entry 3305 (class 2606 OID 25667)
-- Name: Published_by Publishedby_Fkey1; Type: FK CONSTRAINT; Schema: Book_Store; Owner:
    postgres
--

ALTER TABLE ONLY "Book_Store"."Published_by"
    ADD CONSTRAINT "Publishedby_Fkey1" FOREIGN KEY ("Publisher_ID") REFERENCES "Book_Store"."
        Publisher"("Publisher_ID") NOT VALID;


--
-- TOC entry 3306 (class 2606 OID 25672)
-- Name: Written_by Writtenby_Fkey1; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Written_by"
    ADD CONSTRAINT "Writtenby_Fkey1" FOREIGN KEY ("Author_ID") REFERENCES "Book_Store"."
        Author"("Author_ID") NOT VALID;


--
-- TOC entry 3307 (class 2606 OID 25677)
-- Name: Written_by Writtenby_Fkey2; Type: FK CONSTRAINT; Schema: Book_Store; Owner: postgres
--

ALTER TABLE ONLY "Book_Store"."Written_by"
    ADD CONSTRAINT "Writtenby_Fkey2" FOREIGN KEY ("ISBN") REFERENCES "Book_Store"."Book"("
        ISBN") NOT VALID;


-- Completed on 2022-12-16 19:43:54

--
-- PostgreSQL database dump complete
--
```

Populate the Database: Example

```
--
-- PostgreSQL database dump
--

-- Dumped from database version 15.1
-- Dumped by pg_dump version 15.1

SET statement_timeout = 0;
SET lock_timeout = 0;
SET idle_in_transaction_session_timeout = 0;
SET client_encoding = 'UTF8';
SET standard_conforming_strings = on;
SELECT pg_catalog.set_config('search_path', '', false);
SET check_function_bodies = false;
SET xmloption = content;
SET client_min_messages = warning;
SET row_security = off;

--
-- Data for Name: Admin; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Admin" ("Admin_ID", "Role", "Username", "Password") VALUES (1, '
    Main', 'admin', 'admin123');
INSERT INTO "Book_Store"."Admin" ("Admin_ID", "Role", "Username", "Password") VALUES (4, '
    Support', 'Service', 'service123');


--
-- Data for Name: Author; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Author" ("Author_ID", "Name", "Surname", "URL", "Email") VALUES
    (14, 'Harvey', 'Deitel', '', '');
INSERT INTO "Book_Store"."Author" ("Author_ID", "Name", "Surname", "URL", "Email") VALUES
    (15, 'Paul', 'Deitel', '', '');
INSERT INTO "Book_Store"."Author" ("Author_ID", "Name", "Surname", "URL", "Email") VALUES
    (16, 'Tem', 'Nieto', '', '');
INSERT INTO "Book_Store"."Author" ("Author_ID", "Name", "Surname", "URL", "Email") VALUES
    (17, 'Sean', 'Santry', '', '');


--
-- Data for Name: Book; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Book" ("Title", "Price", "Pages", "Language", "Description", "ISBN"
    ) VALUES ('C How to Program', 69.95, 1008, 'English', '', '0130895725');
INSERT INTO "Book_Store"."Book" ("Title", "Price", "Pages", "Language", "Description", "ISBN"
    ) VALUES ('The Complete C++ Training Course', 109.95, 1264, 'English', '', '0139163050');
INSERT INTO "Book_Store"."Book" ("Title", "Price", "Pages", "Language", "Description", "ISBN"
    ) VALUES ('Java How to Program', 129.95, 1296, 'English', '', '0130125075');
```

```
INSERT INTO "Book_Store"."Book" ("Title", "Price", "Pages", "Language", "Description", "ISBN"
    ) VALUES ('Internet and World Wide Web How to Program', 69.95, 960, 'English', '', '
    0130161438');
INSERT INTO "Book_Store"."Book" ("Title", "Price", "Pages", "Language", "Description", "ISBN"
    ) VALUES ('e-Business and eCommerce How to Program', 69.95, 1312, 'English', '', '
    0132261197');


--
-- Data for Name: Category; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (1, 'Adventure stories');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (2, 'Classics');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (3, 'Crime');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (4, 'Fairy tales, fables,
    and folk tales');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (5, 'Fantasy');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (6, 'Historical fiction');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (7, 'Horror');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (8, 'Humour and satire');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (9, 'Literary fiction');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (10, 'Mystery');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (11, 'Poetry');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (12, 'Plays');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (13, 'Romance');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (14, 'Science fiction');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (15, 'Short stories');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (16, 'Thrillers');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (17, 'War');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (18, 'Womens fiction');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (19, 'Young adult');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (20, 'Autobiography and
    memoir');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (21, 'Biography');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (22, 'Essays');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (23, 'Non-fiction novel');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (24, 'Self-help');
INSERT INTO "Book_Store"."Category" ("Category_ID", "Name") VALUES (25, 'Programming');


--
-- Data for Name: Warehouse; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Warehouse" ("Warehouse_ID", "Address") VALUES (1, 'Padova');
INSERT INTO "Book_Store"."Warehouse" ("Warehouse_ID", "Address") VALUES (2, 'Vicenza');
INSERT INTO "Book_Store"."Warehouse" ("Warehouse_ID", "Address") VALUES (3, 'Treviso');


--
-- Data for Name: Copy; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--
```

```
INSERT INTO "Book_Store"."Copy" ("Copy_ID", "ISBN", "Warehouse_ID", "Availibility") VALUES
    (1, '0130895725', 1, true);
INSERT INTO "Book_Store"."Copy" ("Copy_ID", "ISBN", "Warehouse_ID", "Availibility") VALUES
    (2, '0139163050', 1, true);
INSERT INTO "Book_Store"."Copy" ("Copy_ID", "ISBN", "Warehouse_ID", "Availibility") VALUES
    (3, '0130125075', 2, true);
INSERT INTO "Book_Store"."Copy" ("Copy_ID", "ISBN", "Warehouse_ID", "Availibility") VALUES
    (4, '0130161438', 3, true);
INSERT INTO "Book_Store"."Copy" ("Copy_ID", "ISBN", "Warehouse_ID", "Availibility") VALUES
    (5, '0132261197', 2, true);


--
-- Data for Name: Customer; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Customer" ("Customer_ID", "Name", "Address", "Email", "Surname", "
    Password", "Phone") VALUES (1, 'Aysima', 'Padova', 'aysimaakkurt@gmail.com', 'Akkurt', '
    59541565fasf', '+395551655151');
INSERT INTO "Book_Store"."Customer" ("Customer_ID", "Name", "Address", "Email", "Surname", "
    Password", "Phone") VALUES (2, 'Ali', 'Vicenza', 'aliyildirim@gmail.com', 'Yildirim', '
    sdf5599ag', '+39565677771');


--
-- Data for Name: Has; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Has" ("Category_ID", "ISBN") VALUES (25, '0130895725');
INSERT INTO "Book_Store"."Has" ("Category_ID", "ISBN") VALUES (25, '0139163050');
INSERT INTO "Book_Store"."Has" ("Category_ID", "ISBN") VALUES (25, '0130125075');
INSERT INTO "Book_Store"."Has" ("Category_ID", "ISBN") VALUES (25, '0130161438');
INSERT INTO "Book_Store"."Has" ("Category_ID", "ISBN") VALUES (25, '0132261197');


--
-- Data for Name: ShippingCompany; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."ShippingCompany" ("Shipping_Company_ID", "Name", "Phone") VALUES
    (1, 'AP Moller-Maersk Group', '+1654658465645');
INSERT INTO "Book_Store"."ShippingCompany" ("Shipping_Company_ID", "Name", "Phone") VALUES
    (2, 'Mediterranean Shipping Company S.A.', '+6555655665');
INSERT INTO "Book_Store"."ShippingCompany" ("Shipping_Company_ID", "Name", "Phone") VALUES
    (3, 'China Cosco ', '+22441654531');


--
-- Data for Name: Package; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Package" ("Package_ID", weight, "Shipping_Company_ID", "Date")
    VALUES (1, 0.5, 1, '2020-10-10');
```

```
INSERT INTO "Book_Store"."Package" ("Package_ID", weight, "Shipping_Company_ID", "Date")
    VALUES (2, 0.7, 2, '2020-10-11');
INSERT INTO "Book_Store"."Package" ("Package_ID", weight, "Shipping_Company_ID", "Date")
    VALUES (3, 0.3, 3, '2020-10-12');


--
-- Data for Name: Invoice; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Invoice" ("Invoice_ID", "Price", "Description", "Customer_ID", "
    Timestamp", "ISBN", "Copy_ID", "Package_ID") VALUES (1, 69.95, '', 1, '2017-07-23
    13:10:11', '0130895725', 1, 1);
INSERT INTO "Book_Store"."Invoice" ("Invoice_ID", "Price", "Description", "Customer_ID", "
    Timestamp", "ISBN", "Copy_ID", "Package_ID") VALUES (2, 69.95, '', 2, '2017-08-20
    12:08:11', '0139163050', 2, 2);


--
-- Data for Name: Message; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Message" ("Message_ID", "Text", "Admin_ID", "Customer_ID", "
    timestamp") VALUES (3, 'Please upload new books', 1, 1, '13:10:11');
INSERT INTO "Book_Store"."Message" ("Message_ID", "Text", "Admin_ID", "Customer_ID", "
    timestamp") VALUES (4, 'I want to buy a book but I have a big problem', 1, 2, '13:10:11')
    ;


--
-- Data for Name: Publisher; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Publisher" ("Publisher_ID", "Name", "URL", "Email", "Phone") VALUES
     (1, 'Prentice Hall', '', '', '');
INSERT INTO "Book_Store"."Publisher" ("Publisher_ID", "Name", "URL", "Email", "Phone") VALUES
     (2, 'Prentice Hall  PTG', '', '', '');


--
-- Data for Name: Published_by; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Published_by" ("Publisher_ID", "Date", "ISBN") VALUES (1, '
    2018-11-03', '0130895725');
INSERT INTO "Book_Store"."Published_by" ("Publisher_ID", "Date", "ISBN") VALUES (1, '
    2017-10-13', '0139163050');
INSERT INTO "Book_Store"."Published_by" ("Publisher_ID", "Date", "ISBN") VALUES (1, '
    2007-03-28', '0130125075');
INSERT INTO "Book_Store"."Published_by" ("Publisher_ID", "Date", "ISBN") VALUES (2, '
    2019-02-11', '0130161438');
INSERT INTO "Book_Store"."Published_by" ("Publisher_ID", "Date", "ISBN") VALUES (2, '
    2017-07-25', '0132261197');
```

```
--
-- Data for Name: Written_by; Type: TABLE DATA; Schema: Book_Store; Owner: postgres
--

INSERT INTO "Book_Store"."Written_by" ("Author_ID", "Date", "ISBN") VALUES (14, '2018-11-03',
    '0130895725');
INSERT INTO "Book_Store"."Written_by" ("Author_ID", "Date", "ISBN") VALUES (15, '2017-10-13',
    '0139163050');
INSERT INTO "Book_Store"."Written_by" ("Author_ID", "Date", "ISBN") VALUES (16, '2007-03-28',
    '0130125075');
INSERT INTO "Book_Store"."Written_by" ("Author_ID", "Date", "ISBN") VALUES (17, '2019-02-11',
    '0130161438');
INSERT INTO "Book_Store"."Written_by" ("Author_ID", "Date", "ISBN") VALUES (15, '2017-07-25',
    '0132261197');


--
-- PostgreSQL database dump complete
--
```

Principal Queries

- Finding the information about the customers who have a package on the way, the day when the package is created and the shipping company which is delivering it

```
Select "Customer"."Name" as CustomerName, "Customer"."Address" as CustomerAddress,"
    Customer"."Phone" as
CustomerPhoneNumber, InvPC."Name" as ShippingCompany,InvPC."Date" as PackageCreatedDate
    from "Book_Store"."Customer"
Inner Join (Select * from "Book_Store"."Invoice" as Inv Inner Join
                (Select * from "Book_Store"."Package" as Pack Inner Join "Book_Store"."
                    ShippingCompany" as Comp On Pack."Shipping_Company_ID"= Comp."
                    Shipping_Company_ID") AS PC
                On Inv."Package_ID"= PC."Package_ID") as InvPC
                On "Customer"."Customer_ID" = InvPC."Customer_ID";
```

The output is shown below.

```
 customername | customeraddress | customerphonenumber |          shippingcompany          | packagecreateddate
--------------+-----------------+---------------------+-----------------------------------+--------------------
 Aysima       | Padova          | +395551655151       | AP Moller-Maersk Group            | 2020-10-10
 Ali          | Vicenza         | +39565677771        | Mediterranean Shipping Company S.A. | 2020-10-11
(2 rows)
```

- Finding the Copy_ID, ISBN and the warehouse address where the Copy that is inside a package was stored

```
Select WInvCo."Address" AS WarehouseAddress, WInvCo."Package_ID", WInvCo."Copy_ID" from
(Select * from "Book_Store"."Warehouse" as W Inner Join
 (Select Co."Warehouse_ID",Inv.* from "Book_Store"."Copy" AS Co Inner Join "Book_Store".
     "Invoice" AS Inv on Co."Copy_ID"=Inv."Copy_ID") AS InvCo
 on W."Warehouse_ID"=InvCo."Warehouse_ID") as WInvCo;
```

The output is shown below.

```
 warehouseaddress | Package_ID | Copy_ID
------------------+------------+---------
 Padova           |          1 |       1
 Padova           |          2 |       2
(2 rows)
```

- Finding the customers who have sent a message, the message that they have sent, and the admin who has received it

```
Select AdCust."Name", AdCust."Text", AdCust."Username" From
( Select * from "Book_Store". "Admin" AS Ad Inner Join
 ( Select * from "Book_Store"."Message" AS Msg Inner Join "Book_Store"."Customer" as
     Cust On Msg."Customer_ID"=Cust. "Customer_ID") AS CustMsg
 On Ad."Admin_ID"=CustMsg."Admin_ID") As AdCust;
```

The output is shown below.

```
  Name  |                    Text                     | Username
--------+---------------------------------------------+----------
 Aysima | Please upload new books                     | admin
 Ali    | I want to buy a book but I have a big problem | admin
(2 rows)
```

- Find the authors who have written programming books which are stored in the database and the titles of the books they have written

```
Select "Author"."Name", "Author"."Surname", WB."Title" from "Book_Store"."Author" Inner
    Join
( Select W."Author_ID",HCB.* from "Book_Store"."Written_by" as W Inner Join
 (Select HC.*, B."Title" from "Book_Store"."Book" as B Inner Join
  (Select * from "Book_Store"."Has" Inner Join "Book_Store"."Category" on "Has". "
      Category_ID"= "Category"."Category_ID" where "Category"."Name"='Programming') AS
      HC
 on B."ISBN"= HC."ISBN") as HCB
 on W."ISBN"=HCB."ISBN" ) as WB
 on "Author"."Author_ID"= WB."Author_ID";
```

The output is shown below.

```
 Name   | Surname |                    Title
--------+---------+-------------------------------------------
 Harvey | Deitel  | C How to Program
 Paul   | Deitel  | The Complete C++ Training Course
 Tem    | Nieto   | Java How to Program
 Sean   | Santry  | Internet and World Wide Web How to Program
 Paul   | Deitel  | e-Business and eCommerce How to Program
(5 rows)
```

- Find the number of copies each book has and display all the information about each book

```
Select "Book".*, Count ("Copy"."Copy_ID") from "Book_Store"."Book" Inner join "
    Book_Store"."Copy" on "Book"."ISBN"= "Copy"."ISBN" Group By "Book"."ISBN";
```

The output is shown below.

```
                Title                  | Price  | Pages | Language | Description |    ISBN    | count
---------------------------------------+--------+-------+----------+-------------+------------+-------
 e-Business and eCommerce How to Program |  69.95 |  1312 | English  |             | 0132261197 |     1
 Internet and World Wide Web How to Program |  69.95 |   960 | English  |             | 0130161438 |     1
 Java How to Program                    | 129.95 |  1296 | English  |             | 0130125075 |     1
 The Complete C++ Training Course       | 109.95 |  1264 | English  |             | 0139163050 |     1
 C How to Program                       |  69.95 |  1008 | English  |             | 0130895725 |     1
(5 rows)
```

JDBC Implementations of the Principal Queries and Visualization

```
import java.sql.*;
import java.sql.DriverManager;
import java.util.Scanner;



public class test {
    private static final String DRIVER = "org.postgresql.Driver";
    private static final String conn_string = "jdbc:postgresql://localhost:5432/";
   // private static final String DATABASE_1 = "test_db_homework_2";


   /* private  String USER = null; //postgres
    private static final String PASSWORD =  null; //B@b1lonia*/


    public static void main(String[] args) {
        // the choice made by the user
        String choice = null;
        // the connection to the DBMS
        Connection con = null;
```

```
        // the statement to be executed

        Statement stmt = null;

        // the results of the statement execution
        ResultSet rs = null;
        //start of a connection
        long start_c;
        //end of the connection
        long end_c;
        // start time of a statement
        long start;
        // end time of a statement
        long end;
        try {
            // register the JDBC driver to be used
            Class.forName(DRIVER);
            System.out.printf("Driver %s successfully registered .%n", DRIVER);
        } catch (ClassNotFoundException e) {
            System.out.printf(
                    "Driver %s not found : %s.%n", DRIVER, e.getMessage());
// terminate with a generic error code
            System.exit(-1);
        }
        try {
            System.out.println("Enter the name of your database");
            Scanner sc_db = new Scanner(System.in);
            String db = sc_db.nextLine();

            System.out.println("Enter the user of your database");
            Scanner sc_user = new Scanner(System.in);
            String USER = sc_user.nextLine();

            System.out.println("Enter the password of your database");
            Scanner sc_pass = new Scanner(System.in);
            String PASSWORD = sc_pass.nextLine();

// connect to the database
            start = System.currentTimeMillis();
            String DATABASE = conn_string + db;
            con = DriverManager.getConnection(DATABASE, USER, PASSWORD);
            start_c=System.currentTimeMillis();
            end = System.currentTimeMillis();
            System.out.printf("Connection to database %s successfully established in %,d
                milliseconds .%n", DATABASE, end - start);

            do {

                System.out.println("Enter your query");
                Scanner sc_query = new Scanner(System.in);
                String sql = sc_query.nextLine();
                start = System.currentTimeMillis();
                stmt = con.createStatement();
                end = System.currentTimeMillis();
```

```
                System.out.printf("Statement successfully created in % ,d milliseconds .%n",
                        end - start);

                start = System.currentTimeMillis();

                rs = stmt.executeQuery(sql);

                end = System.currentTimeMillis();
                System.out.printf(" %n%n Query successfully executed % ,d milliseconds .%n",
                        end - start);

                System.out.printf("Query Results :%n");

                for (int i = 1; i <= rs.getMetaData().getColumnCount(); i++) {

                    System.out.print(rs.getMetaData().getColumnName(i) + "   ");
                }
                System.out.print("\n");

                while (rs.next()) {
                    for (int j = 1; j <= rs.getMetaData().getColumnCount(); j++) {

                        String columnValue = rs.getString(j);
                        System.out.print(columnValue + "       ");
                    }
                    System.out.println("");
                }
                 try
                 {
                  if (rs !=null)
                  {
                      start = System.currentTimeMillis ();
                      rs.close ();
                      end=System.currentTimeMillis ();
                      System.out.printf ("%nResult set successfully closed in % ,d
                          milliseconds. %n",
                      end - start );
                  }
                  if (stmt !=null)
                  {
                      start=System.currentTimeMillis ();
                      stmt.close();
                      end=System.currentTimeMillis ();
                      System.out.printf("%nStatement successfully closed in % ,d milliseconds
                          .%n",
                              end - start );

                  }
                 } catch (SQLException e) {
                     System . out . printf ("Error while releasing resources :%n");
// cycle in the exception chain
                     while (e != null) {
//e. printStackTrace ();
                         System.out.printf(" Message : %s", e.getMessage());
```

```
                        System.out.printf("SQL status code : %s", e.getSQLState());
                        System.out.printf("SQL error code : %s", e.getErrorCode());
                        System.out.printf("%n");
                        e = e.getNextException();
                    }
                }
                System.out.println("Do you want to write another query? Please type 'Yes' if
                    you want to write a query anything else if you do not");
                Scanner sc_ret = new Scanner(System.in);
               choice = sc_ret.nextLine();
            } while (choice.equalsIgnoreCase("Yes"));
            System.out.println ("You are disconnected from your database");
            try
            {
               if (con != null)
               {
                   start=System.currentTimeMillis();
                   con.close();
                   end_c= System.currentTimeMillis();
                   System . out . printf ("Connection successfully closed in %,d milliseconds
                       .%n",
                           end_c - start );
                   System . out . printf ("You have been connected to your database for % ,d
                       milliseconds.%n",
                           end_c - start_c );

               }
            }catch (SQLException e) {
                System.out.printf("Error while releasing connection :%n");
// cycle in the exception chain
                while (e != null) {
//e. printStackTrace ();
                    System.out.printf(" Message : %s", e.getMessage());
                    System.out.printf("SQL status code : %s", e.getSQLState());
                    System.out.printf("SQL error code : %s", e.getErrorCode());
                    System.out.printf("%n");
                    e = e.getNextException();
                }
            }
        }
            catch (SQLException e) {
            System.out.printf("Database access error :%n");

// cycle in the exception chain
            while (e != null) {
//e. printStackTrace ();
                System.out.printf(" Message : %s", e.getMessage());
                System.out.printf("SQL status code : %s", e.getSQLState());
                System.out.printf("SQL error code : %s", e.getErrorCode());
                System.out.printf("%n");
                e = e.getNextException();
            }
        }
```

```
    }
}
```

```
C:\Users\cdata> java -cp C:\Users\cdata\IdeaProjects\test_hw\out\production\test_hw;C:\Users\cdata\Downloads\postgresql-42.5.1.jar test
Driver org.postgresql.Driver successfully registered .
Enter the name of your database
prime_bookstore
Enter the user of your database
postgres
Enter the password of your database
B@b1lonia
Connection to database jdbc:postgresql://localhost:5432/prime_bookstore successfully established in 463 milliseconds .
Enter your query
Select "Book".*, Count ("Copy"."Copy_ID") from "Book_Store"."Book" Inner join "Book_Store"."Copy" on "Book"."ISBN"= "Copy"."ISBN" Group By "Book"."ISBN";
Statement successfully created in  7 milliseconds .


 Query successfully executed  11 milliseconds .
Query Results :
Title   Price   Pages   Language   Description   ISBN   count
e-Business and eCommerce How to Program       69.95       1312       English             0132261197       1
Internet and World Wide Web How to Program       69.95       960       English             0130161438       1
Java How to Program       129.95       1296       English             0130125075       1
The Complete C++ Training Course       109.95       1264       English             0139163050       1
C How to Program       69.95       1008       English             0130895725       1

Result set successfully closed in  0 milliseconds.

Statement successfully closed in  0 milliseconds.
Do you want to write another query? Please type 'Yes' if you want to write a query anything else if you do not
yes
Enter your query
Select "Customer"."Name" as CustomerName, "Customer"."Address" as CustomerAddress,"Customer"."Phone" asCustomerPhoneNumber, InvPC."Name" as ShippingCompany,InvPC."Date" as PackageCreatedDate from "Book_Store"."C
ustomer" Inner Join (Select * from "Book_Store"."Invoice" as Inv Inner Join (Select * from "Book_Store"."Package" as Pack Inner Join "Book_Store"."ShippingCompany" as Comp On Pack."Shipping_Company_ID"= Comp."Sh
ipping_Company_ID") AS PC On Inv."Package_ID"= PC."Package_ID") as InvPC On "Customer"."Customer_ID" = InvPC."Customer_ID";
Statement successfully created in  0 milliseconds .


 Query successfully executed  4 milliseconds .
Query Results :
customername   customeraddress   ascustomerphonenumber   shippingcompany   packagecreateddate
Aysima       Padova       +395551655151       AP Moller-Maersk Group       2020-10-10
Ali       Vicenza       +39565677771       Mediterranean Shipping Company S.A.       2020-10-11

Result set successfully closed in  0 milliseconds.

Statement successfully closed in  0 milliseconds.
Do you want to write another query? Please type 'Yes' if you want to write a query anything else if you do not
yes
Enter your query
```

```
Statement successfully closed in  0 milliseconds.
Do you want to write another query? Please type 'Yes' if you want to write a query anything else if you do not
yes
Enter your query
Select WInvCo."Address" AS WarehouseAddress, WInvCo."Package_ID", WInvCo."Copy_ID" from (Select * from "Book_Store"."Warehouse" as W Inner Join (Select Co."Warehouse_ID",Inv.* from "Book_Store"."Copy" AS Co Inn
r Join "Book_Store"."Invoice" AS Inv on Co."Copy_ID"=Inv."Copy_ID") AS InvCo on W."Warehouse_ID"=InvCo."Warehouse_ID") as WInvCo;
Statement successfully created in  0 milliseconds .


 Query successfully executed  3 milliseconds .
Query Results :
warehouseaddress   Package_ID   Copy_ID
Padova       1       1
Padova       2       2

Result set successfully closed in  0 milliseconds.

Statement successfully closed in  0 milliseconds.
Do you want to write another query? Please type 'Yes' if you want to write a query anything else if you do not
no
You are disconnected from your database
Connection successfully closed in 1 milliseconds.
You have been connected to your database for  152,483 milliseconds.
```

Group Members Contribution

Aysima Merve Akkurt contributed the Variations to the Relational Schema;

Aysima Merve Akkurt,Ejrol sulku and Sandeep Kumar contributed to the Physical Schema;

Aysima Merve Akkurt contributed to the Populate the Database: Example;

Ejrol Sulku and Ali Aghababaei contributed to the Principal Queries;

Ejrol Sulku contributed to the JDBC Implementations of the Principal Queries and Visualization

Shima Shokrpour, Mohammad Mohammadi, Elham Norouzimehmandoustolia strongly participated in the group discussions for each part together with the members which contributed in the sections.