# Information Model

# Class:

# User

## Attributes:

## userId: Unique identifier for each user (primary key, auto-allocated).

## firstName: User's given name.

## lastName: User's family name.

## email: User's email for login and communication.

## password: User's password for secure login (should be encrypted).

## role: Defines the user's role (customer, staff, manager). This attribute will determine access levels and permissions within the system.

## Relationships:

## Associated with the Order, Address, and BankCard classes (if the user is a customer).

## Address

## Attributes:

## addressId: Unique identifier for each address (primary key, auto-allocated).

## roomNumber: Specific identifier for each user's location.

## street: Street name and number.

## city: City name.

## country: Country name.

## postCode: Postal or ZIP code.

## Relationships: Belongs to a User.

## BankCard

## Attributes:

## cardId: Unique identifier for the card (primary key, auto-allocated).

## cardNumber: The card number (should be encrypted).

## cardHolderName: The name of the cardholder.

## expiryDate: The expiration date of the card.

## securityCode: Security code (CVV) of the card (should be encrypted).

## Relationships: Belongs to a User.

## Order

## Attributes:

## orderId: Unique identifier for each order.

customerId: Should correspond to the id of the user class

## status: Current status of the order. {pending, confirmed, fulfilled}

## datePlaced: The date when the order was placed (auto-allocated).

## totalAmount: The total monetary value of the order.

## Relationships:

## Connected to a User (specifically customers).

## Associated with one or more Product items.

## Product(abstract)

## Attributes:

name

brand

code

gauges

## Relationships:

Super class of every product

Locomotive

## Attributes:

priceBrackets : { Analogue, DCC-Ready, DCC-Fitted , DCC-Sound}

era: The locomotive belongs to which railway era { Era 1 (1804 – 1874 pioneering), Era 2 (1875 – 1922 pre-grouping), Era 3 (1923 – 1947 LMS, GWR, LNER, SR) 1, Era 4 (1948 – 1956 BR Early Crest), Era 5 (1957 – 1966 BR Late Crest), Era 6 (1967 – 1971 BR Blue Livery), Era 7 (1972 – 1982 post-TOPS), Era 8 (1983 – 1994 BR Sectorisation), Era 9 (1995 – 2004 Privatisation), Era 10 (2005 – 2015 Rebuilding), and Era 11 (2016 – 2026 Current).} (Locomotives, rolling stock, train packs and train sets may be labelled with e.g. “Era 4-5” to indicate that the vehicle was used during those eras.)

## Relationships:

extend product class

RollingStock (abstract)

## Attributes:

## Relationships:

extend product class

Carriage

## Attributes:

era: The carriage belongs to which railway era { Era 1 (1804 – 1874 pioneering), Era 2 (1875 – 1922 pre-grouping), Era 3 (1923 – 1947 LMS, GWR, LNER, SR) 1, Era 4 (1948 – 1956 BR Early Crest), Era 5 (1957 – 1966 BR Late Crest), Era 6 (1967 – 1971 BR Blue Livery), Era 7 (1972 – 1982 post-TOPS), Era 8 (1983 – 1994 BR Sectorisation), Era 9 (1995 – 2004 Privatisation), Era 10 (2005 – 2015 Rebuilding), and Era 11 (2016 – 2026 Current).} (Locomotives, rolling stock, train packs and train sets may be labelled with e.g. “Era 4-5” to indicate that the vehicle was used during those eras.)

BRStandardMarks : { Mark 1 (maroon), Mark 2 (blue/grey), Mark 3 (InterCity 125) , Mark 4(InterCity 225)}

## Relationships:

Extend RollingStock class

Wagon

## Attributes:

era: The wagon belongs to which railway era { Era 1 (1804 – 1874 pioneering), Era 2 (1875 – 1922 pre-grouping), Era 3 (1923 – 1947 LMS, GWR, LNER, SR) 1, Era 4 (1948 – 1956 BR Early Crest), Era 5 (1957 – 1966 BR Late Crest), Era 6 (1967 – 1971 BR Blue Livery), Era 7 (1972 – 1982 post-TOPS), Era 8 (1983 – 1994 BR Sectorisation), Era 9 (1995 – 2004 Privatisation), Era 10 (2005 – 2015 Rebuilding), and Era 11 (2016 – 2026 Current).} (Locomotives, rolling stock, train packs and train sets may be labelled with e.g. “Era 4-5” to indicate that the vehicle was used during those eras.)

## Relationships:

extend RollingStock class

Controller

## Attributes:

Type : {analogue,digital (DCC)}

## Relationships:

extend product class

Track

## Attributes:

radius: radius of the track

type: { StarterOvalTrack, CurveTrack , StraightTrack, }

## Relationships:

extend product class

TrainPack

## Attributes:

locomotive:

rollingStock: { wagon ,carriage}

## Relationships:

extend product class

PointSwitch

## Attributes:

## Relationships:

extend product class

TrackPack

## Attributes:

StarterOvalTrack:

extensionPack : {Track}

## Relationships:

extend product class

Scenic

## Attributes:

## Relationships:

extend product class