# Project-I (Online Shopping System)

Intended Functionality:

The online shopping system allows users to interact easily with a platform organized around different entities. The main entity, Users, is divided into two specialized types: Customers and Administrators. Customers can browse and view Products, which are grouped into Categories based on their type or functionality. When a customer wants to make a purchase, they create an Order that contains multiple products through the OrderItems entity. Each order is therefore linked to a customer and contains references to the selected products, while each product can appear in multiple orders. On the administrators' side, the system allows for managing products and categories, tracking orders, and maintaining data integrity. This structure naturally reflects the relationships between entities: customers place orders, orders contain items linked to products, and products belong to categories, while the inheritance between users, customers, and administrators distinguishes roles while ensuring coherent data management. Overall, the system aims to provide a smooth, secure, and efficient user experience for managing purchases and the product catalog.

ER diagram:
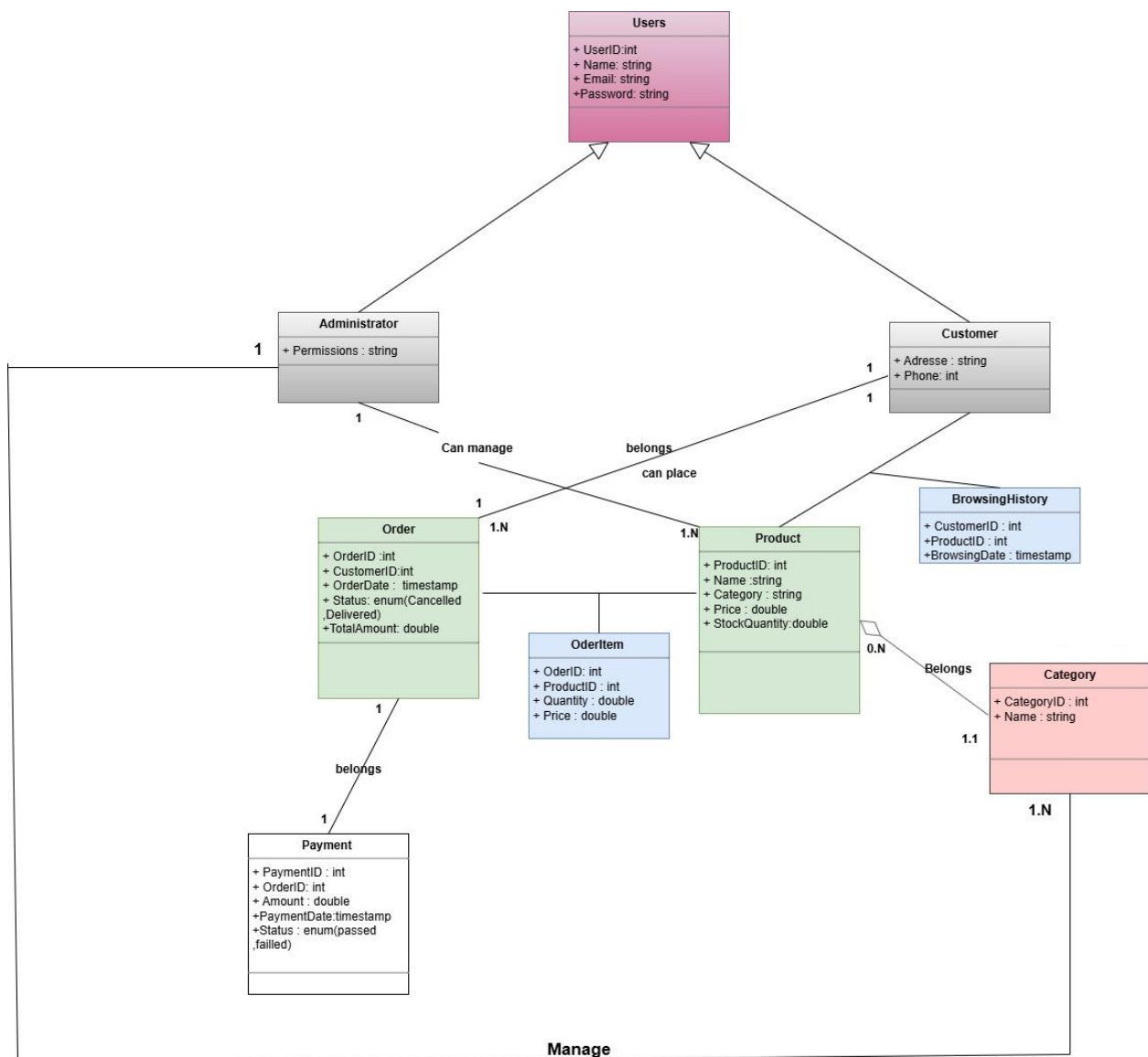
User Interaction:

User View	Possible Actions	Expected Result	Handling of Illegal Inputs/Actions
Users (General)	Log in, log out	Access to platform functionalities	Invalid credentials → error message and blocked access
Customers	Browse Products by Categories	View products grouped by type or functionality	Invalid filters/search → empty results or message
Product Details	View detailed information (description, price, stock)	Complete product information	Missing or incorrect data → informative message
Cart / OrderItems	Add/remove products, modify quantities	Cart updated with selected products and totals	Quantity exceeds stock → action blocked with message
Order / Payment	Create order, select products, confirm payment	Order recorded, stock updated, order status updated	Invalid payment info or out-of-stock products → order not created + error message
Order History	View past orders and status	Visibility of all previous orders	Attempt to access another user's orders → access denied
Administrators	Manage Products and Categories	Catalog updated, stock managed	Invalid data (negative price, empty fields) or deletion of products in active orders → blocked + message
Administrators	Track Orders	Order status updated, data integrity maintained	Unauthorized modification attempts → rejected and logged
Permissions / Roles	Perform actions according to role	Restricted and secure access to features	Unauthorized actions → blocked and notification