

**UML Class Diagram**

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| OrderController |

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| OrderService |

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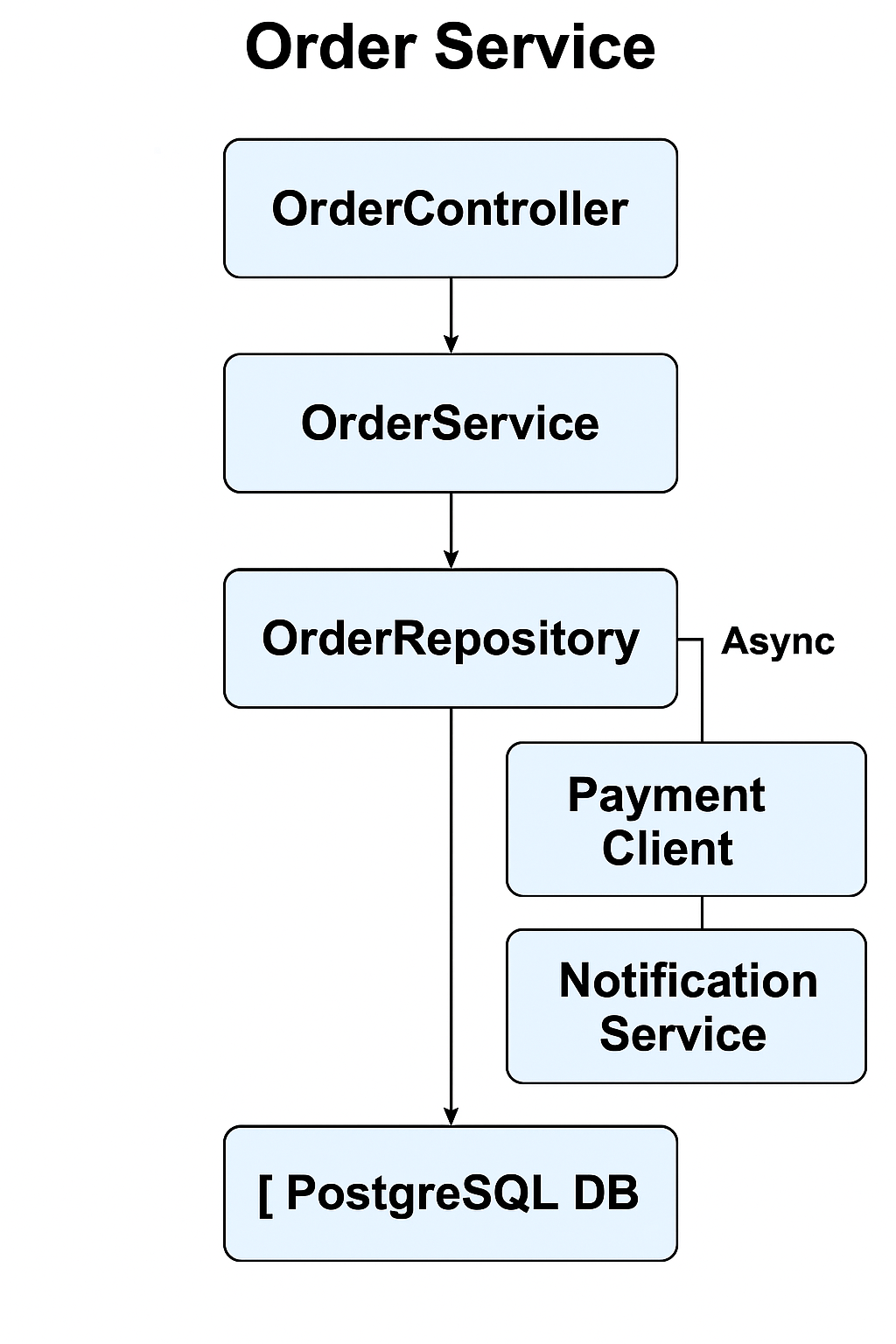
+---------------------+ → Async → [ PaymentClient ]

| OrderRepository | → Async → [ NotificationService ]

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[ PostgreSQL DB ]



**1. User Service – Architecture Diagram**

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| UserController |

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+---------------------+

| UserService |

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+---------------------+ → [ LoggerUtil ]

| UserRepository | → [ BCryptPasswordEncoder ]

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[ MySQL Database ]

**Product Catalog Service – Architecture Diagram**

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| ProductCatalogController |

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| ProductCatalogService |

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+----------------------------+ → [ CategoryFilterUtil ]

| ProductRepository | → [ PriceCalculatorUtil ]

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[ MySQL (product\_db) ]

**Product Catalog Service – Architecture Diagram**

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| ProductCatalogController |

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| ProductCatalogService |

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+----------------------------+ → [ CategoryFilterUtil ]

| ProductRepository | → [ PriceCalculatorUtil ]

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[ MySQL (product\_db) ]

**Card Validation Service – Lightweight Diagram**

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| CardValidationController|

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| CardValidationService |

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[ No repository layer ]

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[ H2 In-Memory DB ]

