

# PROJECT PART3

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## GAS STATION PUMP

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For this deliverable, our team developed the System Sequence Diagram associated with the gas station pump system. Our team explored as many system operations as we could, as well as devising the respective Operation Contracts.

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## System Sequence Diagram

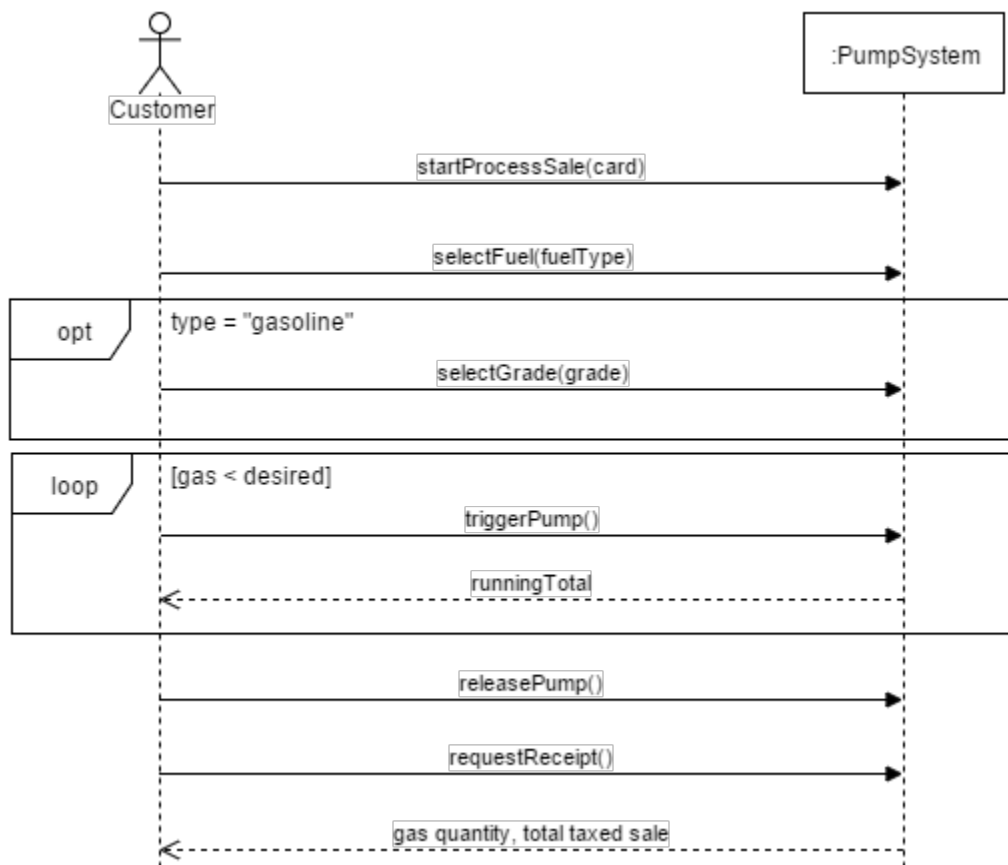


Figure 1: System Sequence Diagram for the Pump Control System

## Operation Contracts

### OC1: startProcessSale(card: Card)

**Cross-Reference:** UC Process Pump Sale

**Pre-condition:**

- Gas Inventory System attribute *gas quantity* should be greater than zero.

**Post-condition:**

- Card *card* instance was created.
- *card* was associated to the *cardReader* instance.
- *payment* instance was created and associated to *card*.
- Sale *currentSale* instance was created and associated to *payment*.

### OC2: selectFuel(fuel: FuelType)

**Cross-Reference:** UC Process Pump Sale

**Pre-condition:**

- There should be an instance *currentSale* of Sale

**Post-condition:**

- Nozzle instance *nozzle* was created
- Fuel Type *fuel* was created and *nozzle* was associated to *fuel*, *nozzle.isClipped* = *false*

### OC3: selectGrade(grade: Integer)

**Cross-Reference:** UC Process Pump Sale

**Pre-condition:**

- The Fuel Type should be an instance of Gasoline

**Post-condition:**

- Attribute *grade* of Gasoline instance *gas* was set to grade.

## OC4: triggerPump()

**Cross-Reference:** UC Process Pump Sale

**Pre-condition:**

- There should be a Pump Machine instance *machine* associated to *nozzle*

**Post-condition:**

- Attributes of *machine* were initialized.
- *nozzle.isClipped* became true.
- *machine* updated attribute *currentAmount* to running total.
- *machine* updated attribute *currentPrice* to running price.

## OC5: releasePump()

**Cross-Reference:** UC Process Pump Sale

**Pre-condition:** none.

**Post-condition:**

- *nozzle.isClipped* became false
- *machine* updated attribute *gas quantity* from Gas Inventory System.
- Gas Inventory System attribute *taxValue* was applied to *machine.currentPrice*.

## OC6: requestReceipt()

**Cross-Reference:** UC Process Pump Sale

**Pre-condition:**

- The attribute *currentPrice* of Pump Machine should contain the total amount with taxes.

**Post-condition:**

- An instance *receipt* of Receipt was created and associated to the instance of Receipt Printer.
- *receipt.quantity* became *machine.currentAmount* and *receipt.totalSaleAmount* became total with taxes.