

**Gas Station Project**  
**Use-Case Specification: UC100 Refuel Automobile**

**Version 0.2**

**TRAINING**  
**EXAMPLE #1**

## 1. Goal

This use case describes the process for purchasing gasoline using a self-service gasoline pump.

## 2. Actors

Actor Name	Description
Gas Customer (Primary)	Any person who is purchasing gasoline via interaction with a self-service gasoline pump.
Credit Card Authorizer (2 <sup>nd</sup> )	System responsible for validating and processing credit card transactions.

## 3. Pre-conditions

ID	Conditions that must exist prior to starting this Use Case
PRE1	None.

## 4. Flow of Events

### 4.1 Main Flow (Credit Card Payment for Regular Grade Gas)

Step	Actor Action (User Requirement)	System Response (Functional Requirement)	Alternate / Exception Flow
1	The Gas Customer requests to fuel automobile.	M1.F1 The Gas System prompts Gas Customer to indicate "Payment Method."	EXC1
2	The Gas Customer provides "Credit Card Payment Information."	M2.F1 The Gas System validates "Credit Card Payment Information." M2.F2 The Gas System transfers "Credit Card Payment Information" to Credit Card Authorizer. M2.F3 The Gas System receives "Authorization Information" from Credit Card Authorizer. M2.F4 The Gas System prompts Gas Customer to indicate "Gas Grade."	ALT1 EXC2 EXC3 EXC4
3	The Gas Customer requests to receive "Regular Grade Gasoline."	M3.F1 The Gas System provides "Regular Grade Gasoline." M3.F2 The Gas System provides "Gas Consumption Details" to Card Authorizer for payment processing. M3.F3 The Gas System calculates "Station Usage Totals." M3.F4 The Gas System presents "Gas Consumption Summary" to Gas Customer. M3.F5 The Gas System presents Gas Customer with "Confirmation Prompt."	ALT2 ALT3
4	The Gas Customer receives "Gas Consumption Confirmation." The Use Case ends.	M4.F1 The Gas System presents "Gas Consumption Confirmation." M4.F2 The Gas System presents "Thank You Communication."	ALT4 ALT5

## 4.2 Alternative Flow(s):

## ALT 1 –Cash Payment

Step	Actor Action	System Response	Exception Flow
2	The Gas Customer provides "Cash Payment."	A1.F1 The Gas System validates "Cash Payment." M2.F4 The Gas System prompts Gas Customer to indicate "Gas Grade." Return to Main Flow step 3.	

## ALT 2 –Silver Grade Selected

Step	Actor Action	System Response	Exception Flow
3	The Gas Customer requests to receive "Silver Grade Gasoline."	M3.F1 The Gas System provides "Silver Grade Gasoline." M3.F2 The Gas System provides "Gas Consumption Details" to Card Authorizer for payment processing. M3.F3 The Gas System calculates "Station Usage Totals." M3.F4 The Gas System presents "Gas Consumption Summary" to Gas Customer. M3.F5 The Gas System presents Gas Customer with "Confirmation Prompt." Return to Main Flow step 4.	

## ALT 3 –Premium Grade Selected

Step	Actor Action	System Response	Exception Flow
3	The Gas Customer requests to receive "Premium Grade Gasoline."	M3.F1 The Gas System provides "Premium Grade Gasoline." M3.F2 The Gas System provides "Gas Consumption Details" to Card Authorizer for payment processing. M3.F3 The Gas System calculates "Station Usage Totals." M3.F4 The Gas System presents "Gas Consumption Summary" to Gas Customer. M3.F5 The Gas System presents Gas Customer with "Confirmation Prompt." Return to Main Flow step 4.	

## ALT 4 –No Receipt Wanted

Step	Actor Action	System Response	Exception Flow
4	The Gas Customer provides "Receipt Response". The Use Case ends.	M4.F2 The Gas System presents "Thank You Communication."	

## ALT 5 –Gas System is out of Receipt Paper

Step	Actor Action	System Response	Exception Flow
4	The Gas Customer receives "Gas Consumption Confirmation." The Use Case ends.	M4.F4 The Gas System presents "Go Inside Error Message" when Gas System is not able to present "Gas Consumption Summary".	

### 4.3 Exception Flow(s):

#### EXC 1 –Gas System is “Non-Operational”

Step	Actor Action	System Response
1	The Gas Customer requests to fuel automobile.	E1M1.F1 The Gas System shall present “Temporarily Out-of-Service Message” to Gas Customer when the Gas System is “non-operational.” (See Business Rule 772.) This use case ends.

#### EXC 2 –Invalid Credit Card

Step	Actor Action	System Response
2	The Gas Customer provides “Credit Card Payment Information.”	E2M2.F1 The Gas System presents “Invalid Credit Card Payment Error Message” when “Credit Card Payment Information” is invalid. This use case ends.

#### EXC 3 –Customer Doesn’t Respond within Time Allowed

Step	Actor Action	System Response
2	The Gas Customer provides “Credit Card Payment Information.”	E3M2.F1 The Gas System shall present “Time Allowed Limit Exceeded Error Message” when Gas Customer does not respond to Gas System prompts within “Time Allowed Limit”. (See Business Rule G110.) E3M2.F2 The Gas System shall “cancel” the transaction. This use case ends.

#### EXC 4 –Customer Requests to Cancel

Step	Actor Action	System Response
2	The Gas Customer provides “Cancel Request.”	E4M2.F1 The Gas System shall “cancel” the transaction. This use case ends.

## 5. Post-conditions

ID	Conditions that must exist after the Use Case regardless of scenario taken
PST1	None.

## 6. Validation History

Review Date	Overall Outcome	Supplier Outcome(s)	User Outcome(s)	Identified Issues	Issues Assigned To / Date

## Revision History

Date	Version	Description	Author
09/20/2005	0.01	Drafted.	Requirements Producer
10/01/2005	0.10	Outlined. (Main Flow written, and Alternate and Exception Flows identified).	
10/15/2005	0.20	Detailed. (Alternate Flows written, Exception Flows written, Pre-conditions and Post-conditions written).	