

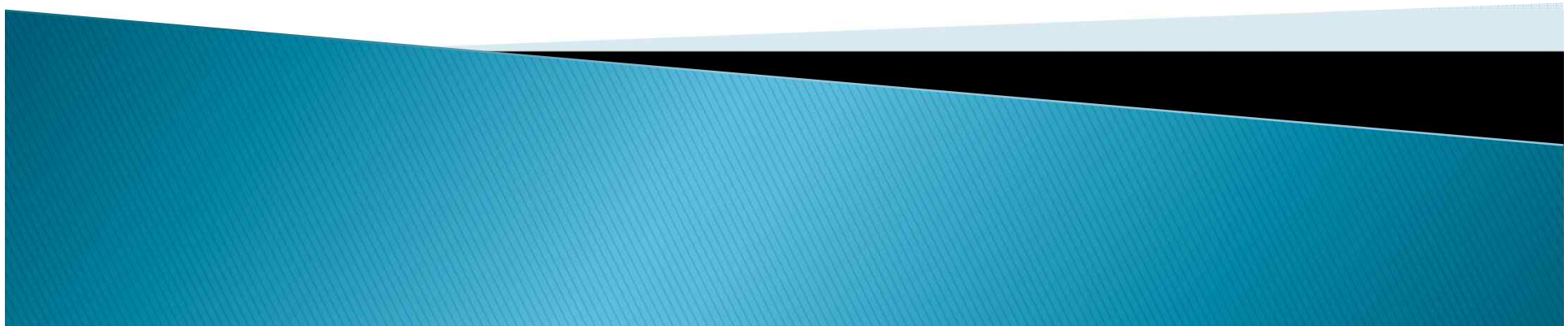
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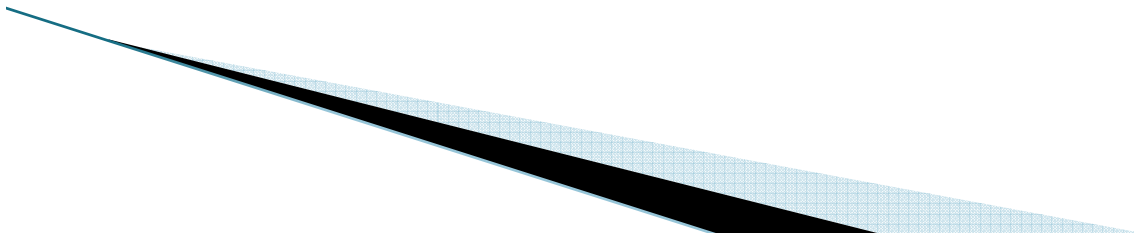
Unit Testing Plan for

# Coffee Machine System



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# Purpose

- Coffee Machine System을 구성하는 단위 모듈을 Test한다.
- 주어진 입력에 대해 올바른 출력을 생성하는가 Test한다.
- 잘못된 값에 대한 예외처리를 하는가 Test한다.
- 단순한 프로세스는 테스트에서 제외한다.

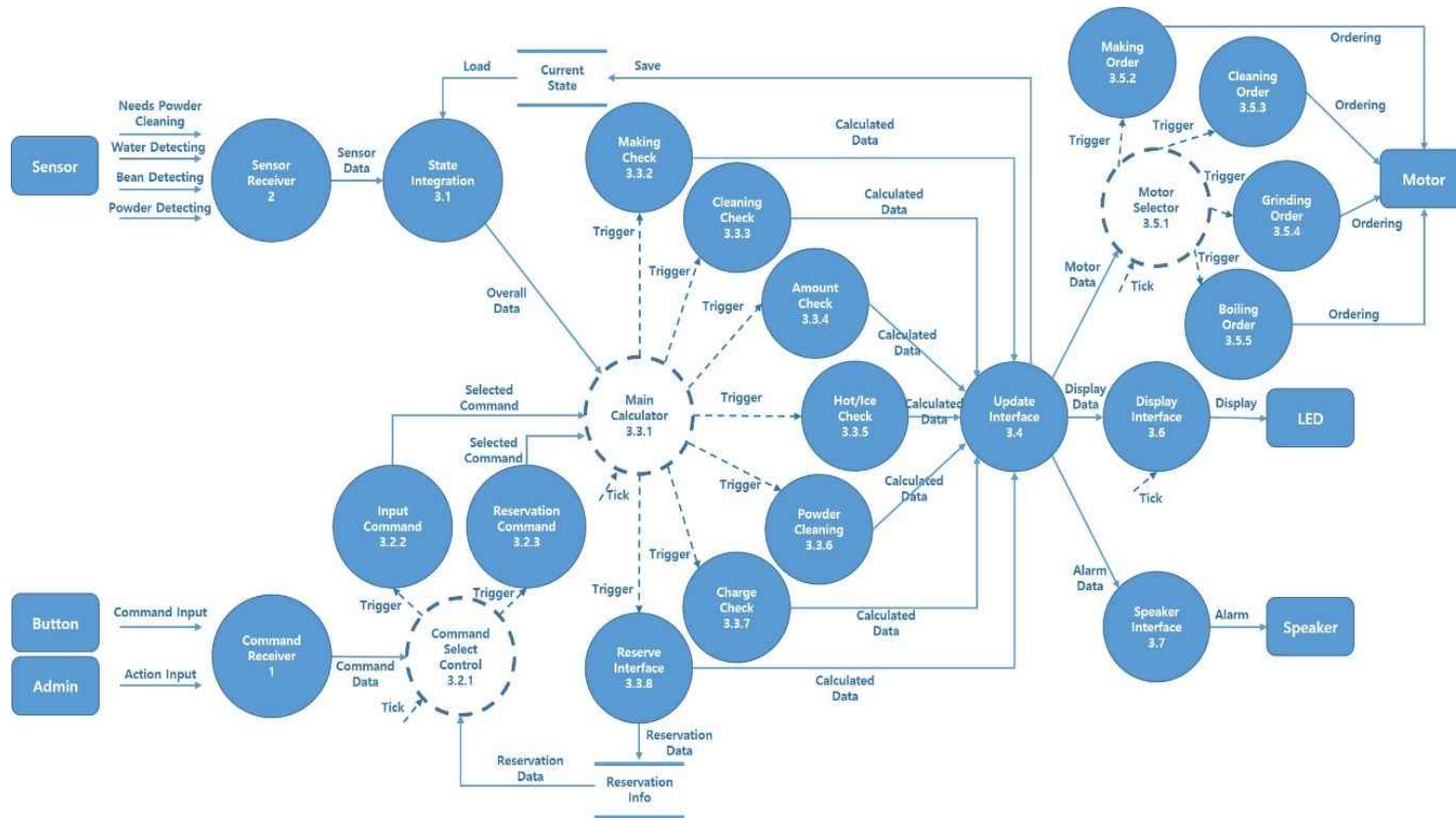


# Development Environment

- GCC
- CUnit



# Overall DFD



# Features to be tested (1 / 3)

ID	Name	Description
3.2.1	Command Select Control	Reservation Data를 분석하여 Input Command와 Reservation Command를 선별해서 Trigger 한다.
3.2.2	Input Command	사용자로부터 실시간으로 입력 받은 Command Data를 Selected Command로 바꿔준다.
3.2.3	Reservation Command	예약된 Command Data를 Selected Command로 바꿔준다.
3.3.1	Main Calculator	Overall Data 정보와 Selected Command를 바탕으로 수행되어야 할 계산 프로세스를 Trigger 한다.



## Features to be tested (2 / 3)

3.3.2	Making Check	커피 추출 시 커피 가루의 상태, 커피의 양, 물의 양을 계산하여 각각의 경우에 대하여 error code를 만들어 내고, 각 명령에 대한 edit code를 생산하여 Calculated Data를 만든다.
3.3.3	Cleaning Check	청소 시에 필요한 물의 양을 계산하여 명령 실행 가능 여부에 따라 error code를 생산하여 Calculated Data를 만든다.
3.3.4	Amount Check	현재 상태가 대기중 인지를 확인하여 농도 변경이 현재 가능한지 여부에 따라 error code를 생산하여 Calculated Data를 만든다.
3.3.5	Hot/Ice Check	현재 상태가 대기중 인지를 확인하여 온도 변경이 현재 가능한지 여부에 따라 error code를 생산하여 Calculated Data를 만든다.





# Features to be tested (3 / 3)

3.3.6	Powder Cleaning	현재 커피 가루 상태를 확인하여 커피 가루 제거가 가능한지 여부에 따라 error code를 생산하여 Calculated Data를 만든다.
3.3.7	Charge Check	현재 상태가 대기중 인지를 확인하여 재료 충전이 현재 가능한지 여부에 따라 error code를 생산하여 Calculated Data를 만든다.
3.3.8	Reservation Interface	현재 상태가 대기중 인지를 확인하여 현재 예약이 가능한지 여부에 따라 error code를 생산하여 Calculated Data를 만든다.
3.4	Update Interface	Calculated Data의 error code와 edit code를 확인하여 Motor에 수행해야할 Order Data를 전달한다.
3.5.1	Motor Selector	Motor Data의 motor job과 temp, grind data





# Features not to be tested

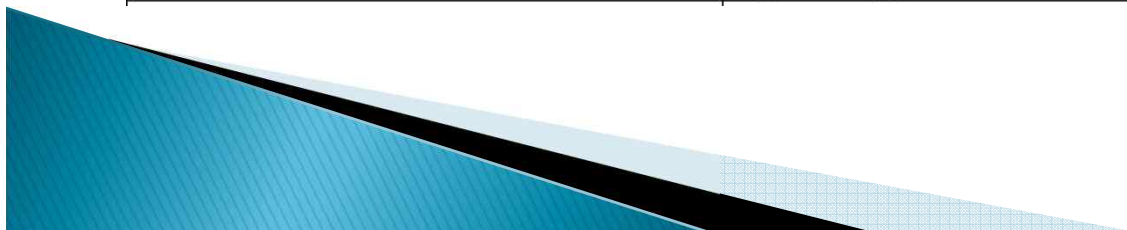
-단순 입출력 프로세스등은 테스트에서 제외



# Test Case specification (1 / 13)

## -Command Select Control-

Identifier	Input Specification	Output Specification
CMS_RESERVE_DATA_001	RESRV_DATA(coffee_hour, coffee_min, cleaning_hour, cleaning_min, is_coffee, is_cleaning) : {1,30,1,30,0,0}	Input Command
CMS_RESERVE_DATA_002	RESRV_DATA(coffee_hour, coffee_min, cleaning_hour, cleaning_min, is_coffee, is_cleaning) : {1,30,1,30,1,0}	Reserve Command
CMS_RESERVE_DATA_003	RESRV_DATA(coffee_hour, coffee_min, cleaning_hour, cleaning_min, is_coffee, is_cleaning) : {1,30,1,30,0,1}	Reserve Command
CMS_RESERVE_DATA_004	RESRV_DATA(coffee_hour, coffee_min, cleaning_hour, cleaning_min, is_coffee, is_cleaning) : {1,30,1,30,1,1}	Reserve Command

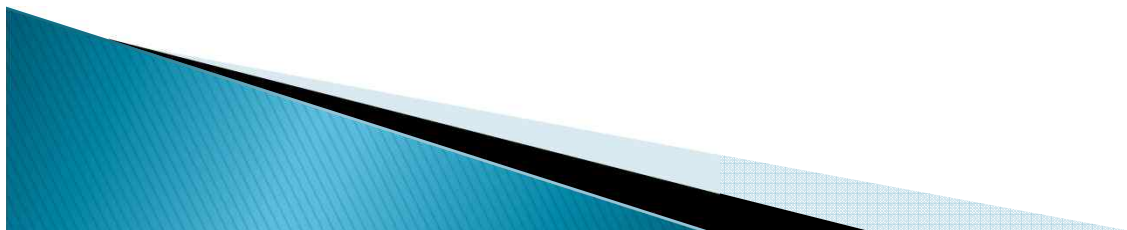


# Test Case specification (2 / 13)

## -Input Command-

Identifier	Input Specification	Output Specification
CMS_InputCommand_Sample_01	COMMAND_DATA(command, option, type, amount) : {"0",1,1,1}	Exception Handling
CMS_InputCommand_Sample_02	COMMAND_DATA(command, option, type, amount) : {"1",0,0,0}	Command.order : 0
CMS_InputCommand_Sample_03	COMMAND_DATA(command, option, type, amount) : {"2",0,0,0}	Command.order : 1 Reserve_type : 0
CMS_InputCommand_Sample_04	COMMAND_DATA(command, option, type, amount) : {"2",1,0,0}	Command.order : 1 Reserve_type : 1
CMS_InputCommand_Sample_05	COMMAND_DATA(command, option, type, amount) : {"2",2,0,0}	Command.order : 1 Reserve_type : 2
CMS_InputCommand_Sample_06	COMMAND_DATA(command, option, type, amount) : {"3",0,0,0}	Command.order : 2
CMS_InputCommand_Sample_07	COMMAND_DATA(command, option, type, amount) : {"4",0,0,0}	Command.order : 3 Amount : 0
CMS_InputCommand_Sample_08	COMMAND_DATA(command, option, type, amount) : {"4",1,0,0}	Command.order : 3 Amount : 1
CMS_InputCommand_Sample_09	COMMAND_DATA(command, option, type, amount) : {"4",2,0,0}	Command.order : 3 Amount : 2

CMS_InputCommand_Sample_10	COMMAND_DATA(command, option, type, amount) : {"4",3,0,0}	Command.order : 10
CMS_InputCommand_Sample_11	COMMAND_DATA(command, option, type, amount) : {"tog",0,0,0}	Command.order : 4
CMS_InputCommand_Sample_12	COMMAND_DATA(command, option, type, amount) : {"@",0,0,0}	Command.order : 5
CMS_InputCommand_Sample_13	COMMAND_DATA(command, option, type, amount) : {"clp",0,0,0}	Command.order : 6
CMS_InputCommand_Sample_14	COMMAND_DATA(command, option, type, amount) : {"chrg",0,0,10}	Command.order : 7 Ingredi_type : 0 Ingredi_amt : 10
CMS_InputCommand_Sample_15	COMMAND_DATA(command, option, type, amount) : {"chrg",0,1,100}	Command.order : 7 Ingredi_type : 1 Ingredi_amt : 100
CMS_InputCommand_Sample_16	COMMAND_DATA(command, option, type, amount) : {"chrg",0,2,0}	Command.order : 7 Ingredi_type : 2
CMS_InputCommand_Sample_17	COMMAND_DATA(command, option, type, amount) : {"chrg",0,3,0}	Command.order : 10



# Test Case specification (3 / 13)

-Reservation Command-

Identifier	Input Specification	Output Specification
CMS_RESERVE_COMMAND_SAMPLE_01	selected_command : {0}	Exception Handling
CMS_RESERVE_COMMAND_SAMPLE_02	selected_command : {1}	Command.order : 0 Is_coffee : 0
CMS_RESERVE_COMMAND_SAMPLE_03	selected_command : {2}	Command.order : 2 Is_cleaning : 0



# Test Case specification (4 / 13)

-Main Calculator-

Identifier	Input Specification	Output Specification
CMS_MAIN_CALCULATOR_01	selected_command : {0}	Making check
CMS_MAIN_CALCULATOR_02	selected_command : {1}	Reservation Interface
CMS_MAIN_CALCULATOR_03	selected_command : {2}	Cleaning check
CMS_MAIN_CALCULATOR_04	selected_command : {3}	Amount check
CMS_MAIN_CALCULATOR_05	selected_command : {4}	Hot/Ice check
CMS_MAIN_CALCULATOR_06	selected_command : {5}	Power off
CMS_MAIN_CALCULATOR_07	selected_command : {6}	Powder cleaning
CMS_MAIN_CALCULATOR_08	selected_command : {7}	Charge check





# Test Case specification (5 / 13)

## -Making Check-

Identifier	Input Specification	Output Specification
CMS_MAKING_CHECK_01	cur_state : {0} water_amt : {100} cur_amt : {0} coffee_amt : {0} powder_state : {1}	job_code : 0 error_code : 0 edit_code : 0
CMS_MAKING_CHECK_02	cur_state : {0} water_amt : {100} cur_amt : {0} coffee_amt : {10} powder_state : {0}	job_code : 0 error_code : 0 edit_code : 1
CMS_MAKING_CHECK_03	cur_state : {1} water_amt : {100} cur_amt : {0} coffee_amt : {10} powder_state : {0}	job_code : 0 error_code : 1
CMS_MAKING_CHECK_04	cur_state : {0} water_amt : {100} cur_amt : {0} coffee_amt : {0} powder_state : {0}	job_code : 0 error_code : 2
CMS_MAKING_CHECK_05	cur_state : {0} water_amt : {100} cur_amt : {1} coffee_amt : {10} powder_state : {1}	job_code : 0 error_code : 3
CMS_MAKING_CHECK_06	cur_state : {0} water_amt : {100} cur_amt : {0} coffee_amt : {10} powder_state : {2}	job_code : 0 error_code : 4



# Test Case specification (6 / 13)

-Cleaning Check-

Identifier	Input Specification	Output Specification
CMS_CLEANING_CHECK_01	cur_state : {0} water_amt : {500}	job_code : 2 error_code : 0
CMS_CLEANING_CHECK_02	cur_state : {0} water_amt : {400}	job_code : 2 error_code : 2
CMS_CLEANING_CHECK_03	cur_state : {1} water_amt : {500}	job_code : 2 error_code : 1



# Test Case specification (7 / 13)

-Amount Check-

Identifier	Input Specification	Output Specification
CMS_AMOUNT_CHECK_01	cur_state : {0} amount : {1}	job_code : 3 error_code : 0
CMS_AMOUNT_CHECK_02	cur_state : {1} amount : {1}	job_code : 3 error_code : 1



# Test Case specification (8/13)

-Hot/Ice Check-

Identifier	Input Specification	Output Specification
CMS_HOT_ICE_CHECK_01	cur_state : {0}	job_code : 4 error_code : 0
CMS_HOT_ICE_CHECK_02	cur_state : {1}	job_code : 4 error_code : 1



# Test Case specification (9 / 13)

-Powder Cleaning-

Identifier	Input Specification	Output Specification
CMS_POWDER_CLEANING_01	cur_state : {0} powder_state : {2}	job_code : 5 error_code : 0
CMS_POWDER_CLEANING_02	cur_state : {0} powder_state : {1}	job_code : 5 error_code : 2
CMS_POWDER_CLEANING_03	cur_state : {1} powder_state : {500}	job_code : 5 Exception Handling



# Test Case specification (10/13)

-Charge Check-

Identifier	Input Specification	Output Specification
CMS_CHARGE_CHECK_01	cur_state : {0} ingredi_type : {1} ingredi_amt : {100}	job_code : 6 error_code : 0 edit_code : 1 new_data : 100
CMS_CHARGE_CHECK_02	cur_state : {1} ingredi_type : {1} ingredi_amt : {100}	job_code : 6 error_code : 1



# Test Case specification (11 / 13)

## -Reservation Interface-

Identifier	Input Specification	Output Specification
CMS_RESERVATION_INTERACE_01	cur_state : {0} reserve_type : {0}	job_code : 1 error_code : 0 is_coffee : 1 edit_code : 0
CMS_RESERVATION_INTERACE_02	cur_state : {0} reserve_type : {1}	job_code : 1 error_code : 0 is_cleaning : 1 edit_code : 1
CMS_RESERVATION_INTERACE_03	cur_state : {1} reserve_type : {1}	job_code : 1 error_code : 1





# Test Case specification (12/13)

## -Update Interface-

Identifier	Input Specification	Output Specification			
CMS_UPDATE_01	job_code : {0} error_code : {0} edit_code : {0}	Making update	CMS_UPDATE_06	job_code : {4} error_code : {0} edit_code : {0}	Temperature_update
CMS_UPDATE_02	job_code : {0} error_code : {1} edit_code : {1}	Making update / need grinding	CMS_UPDATE_07	job_code : {5} error_code : {0} edit_code : {0}	Powder_update
CMS_UPDATE_03	job_code : {1} error_code : {0} edit_code : {0}	Reserve_update	CMS_UPDATE_08	job_code : {6} error_code : {0} edit_code : {0}	Charge_update
CMS_UPDATE_04	job_code : {2} error_code : {0} edit_code : {0}	Cleaning_update	CMS_UPDATE_09	job_code : {0} error_code : {1} edit_code : {0}	Making update / No need grinding
CMS_UPDATE_05	job_code : {3} error_code : {0} edit_code : {0}	Amount_update	CMS_UPDATE_10	job_code : {7} error_code : {0} edit_code : {0}	Exception Handling
			CMS_UPDATE_11	job_code : {7} error_code : {2} edit_code : {4}	Exception Handling

# Test Case specification (13/13)

## -Motor Selector-

Identifier	Input Specification	Output Specification
CMS_MOTOR_DATA_SAMPLE_01	motor_job : {0} temp : {0} grind : {0}	Exception Handling
CMS_MOTOR_DATA_SAMPLE_02	motor_job : {1} temp : {0} grind : {0}	Boiling Order Grinding Order Making Order
CMS_MOTOR_DATA_SAMPLE_03	motor_job : {1} temp : {1} grind : {0}	Grinding Order Making Order
CMS_MOTOR_DATA_SAMPLE_04	motor_job : {1} temp : {1} grind : {1}	Making Order
CMS_MOTOR_DATA_SAMPLE_05	motor_job : {2} temp : {1} grind : {1}	Cleaning Order
CMS_MOTOR_DATA_SAMPLE_06	motor_job : {3} temp : {1} grind : {1}	Exception Handling

# Evaluation

Total test case : 70개

Passed : 70개

Failed : 0개

