

THE BRR MACHINE

Buy, Rent and Repair your car like you are
buying a coffee from a coffee machine!!!



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The source code on GitHub

<https://github.com/RadwanH/theBBR-System>

Statement of Work

While we were sitting in a coffee discussing our goals and vision of our new software company that we established lately our old friend Ali came over to us and after greetings said “I heard you guys are starting a new company, I’m very happy for you! As a matter of fact, I think I actually might be your first customer”

Ali's family have a car business which sells, rents and repairs cars. It appears that Ali's family business is having some problems that could be solved using the amazing modern technology. We saw a big opportunity that could help our new company to take off.

Ali continued explaining their business's problem saying: as you guys might be aware of, our business is getting bigger and bigger lately and the number of our customers is rising dramatically. The thing is that a large group of our customers come to us knowing exactly what car they want to purchase or rent and we don't have the budget to hire new employees for easy tasks like selling, renting and receiving customers who wish to repair their cars. So we want to take advantage of technology and create a system that handles those tasks.

Ali's system idea looked very interesting and exciting to us so we hooked him up with a hardware company we're working with to design the machine that Ali needs. After the machine was ready it was our time to shine.

The BRR Machine

BRR (**B**uy **R**ent and **R**epair) machine is the machine that will run the software that we are developing. The BRR machine will be placed on a corner in the company and will be able to handle tasks like selling, renting and helping customers to hand over their cars for repair without any human interference

Requirements

1. There must be a button to start the machine.
2. The machine should be able to take specs from the customer to find the desired car.
3. Vocal system should be supported.
4. Information about the car should be provided by the system.
5. The car's parking spot should be informed to the customer.
6. The customer should be allowed to take the car on a trial ride.
7. The system should be able to receive payment.
8. Different methods of payment should be allowed.
9. Payment with credit should be the default form of payment.
10. System should verify payments.
11. Car swap feature should be supported.
12. System should ask for personal info to keep records and make contracts with customers.
13. The system should hand over/receive the keys to the customer.

14. Renting details should be taken from the costumer.
15. The system should ask the customer parts of their car that needs to be fixed.
16. Picking broken cars from address should be provided.
17. The system should go back to sleeping mode when customer is done.

Use Cases and Matching with Requirements

1st USE CASE

- | | |
|-----------------------------------------------------------------------------------------------|------|
| 1. A Customer comes to the BRR System's Machine. | N/A |
| 2. The customer pushes the button to start the system. | 1 |
| 3. The system says, "Welcome to FRY Automotive System". | N/A |
| 4. The system says, "Please write down the specs of the car you would you like to purchase?". | 2 |
| 4.1 The system says, "Please say hello to use our vocal system". | 3 |
| 4.2 The customer says hello to trigger the vocal system. | 3 |
| 4.3 The system says "Please tell me what kind of car would you like to purchase". | N/A |
| 4.4 The customer says the specs of the car they would like to purchase. | 2 |
| 5. The customer inputs specs of the car they want to buy. | 2 |
| 6. The system shows information about the car. | 4 |
| 7. The system asks, "Would you like to take it on a ride?". | 6 |
| 8. The customer selects the yes button. | N/A |
| 8.1 The customer selects the "NO" button. | N/A |
| 8.2 The system goes back to the 4 th step. | N/A |
| 9. The system gives the car's key and a note that informs the car's parking spot. | 5 |
| 10. The customer takes the car on a ride. | 6 |
| 11. The customer comes back to the selling machine. | N/A |
| 12. The system asks, "Do you want to buy this car?". | N/A |
| 13. The customer selects the yes button. | N/A |
| 13.1 The customer selects the "NO" button | N/A. |
| 13.2 The system goes back to the 4 th step. | N/A |
| 14. The system asks," How would you like to proceed the payment?". | 8 |
| 15. The customer proceeds payment with a credit card. | 9 |
| 15.1 The customer chooses to make the payment with a monthly installment. | 8 |
| 15.1.1 The customer chooses to trade their old car. | 11 |
| 15.1.2 The system shows trading system's conditions. | N/A |
| 15.1.3 The system jumps to 20 th step. | N/A |
| 15.2 The system jumps to 16 th step. | N/A |
| 16. The system asks, "Fill the credit card info". | 9 |
| 17. The customer fills the payment info. | 9 |
| 18. The system verifies the payment info. | 10 |

19. The system prints out payment info.	10
20. The system asks for personal info.	12
21. The system prints out a copy of a contract.	12
22. The customer fills the contract and signs it.	N/A
23. The system gives the key of the car that the customer bought.	13
24. The system goes back to sleep mode.	17
25. The customer drives the car away happily.	N/A

Value and Conditions of Case 1

Start condition: The customer pushes the button to start the system (2)

Stop condition: 24

Clear value: A costumer is able to purchase a car without any human interference.

External initiator: The customer.

2nd USE CASE

1. A Customer comes to the BRR System's Machine.	N/A
2. The customer pushes the button to start the system.	1
3. The system says, "Welcome to FRY Automotive System".	N/A
4. The system says, "Please write down the specs of the car you would you like to rent?".	2
5. The customer inputs specs of the car they want to rent.	2
6. The system shows information about the car.	4
7. The system asks, "Would you like to rent this car?".	N/A
8. The customer selects the yes button.	N/A
8.1 The customer selects the "NO" button.	N/A
8.2 The system goes back to the 4 th step.	N/A
9. The system asks "for how long you want to rent the car in days?"	14
10. The customer enters for how many days they want to rent the car.	14
11. The system asks," How would you like to proceed to the payment?".	8
12. The customer proceeds payment with a credit card.	9
11.1 The customer chooses to make the payment cash.	8
11.2 The system opens a box to receive the payment.	7
11.3 The system jumps to the 17 th step.	N/A
13. The system asks, "Fill the credit card info".	9
14. The customer fills the payment info.	9
15. The system verifies the payment info.	10
16. The system prints out payment info.	10
17. The system asks for personal info.	12
18. The customer fills in their personal info	12
19. The system prints out a copy of the rent contract.	12
20. The customer fills the contract and signs it.	12
21. The system gives the car's key to the customer.	13

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|-------------------------------------------------------------------|-----|
| 22. The system prints a note that informs the car's parking spot. | 5 |
| 23. The System goes back to sleep. | 17 |
| 24. The customer drives the car away happily. | N/A |

Value and Conditions of Case 2

Start condition: The customer pushes the button to start the system (2)

Stop condition: 23

Clear value: A costumer is able to rent a car without any human interference.

External initiator: The customer.

3rd USE CASE

- | | |
|-------------------------------------------------------------------------------------------------------------------------|-----|
| 1. A Customer comes to the BRR System's Machine. | N/A |
| 2. The customer pushes the button to start the system. | 1 |
| 3. The system says, "Welcome to the BRR System". | N/A |
| 4. The system says, "Please write down the specs of your car". | 2 |
| 4.1 The system says, "Please say hello to use our vocal system". | 3 |
| 4.2 The customer says hello to trigger the vocal system. | 3 |
| 4.3 The system says "Please tell me the model of your car". | 2 |
| 4.4 The customer says the specs of their car. | 3 |
| 4.5 The system jumps to the 6 th step. | N/A |
| 5. The customer inputs model of the car they want to repair. | 2 |
| 6. The system shows information about the customer's car. | 4 |
| 7. The system asks, "What is wrong with your car?
Please select the part you want to repair". | 15 |
| 8. The customer selects the part they want to repair. | 15 |
| 9. The system tells the customer to park the car in a given parking spot. | 5 |
| 9.1 if the car is not drivable the system asks the customer to give an address so the
repairing team can pick it up. | 16 |
| 10. The system sends the car's info to the repairing team. | 16 |
| 11. The system asks, "How would you like to proceed the payment?". | 7 |
| 12. The customer proceeds payment with a credit card. | 9 |
| 12.1 The customer chooses to make the payment cash. | 8 |
| 12.2 The system shows the total payment and opens a box to receive the payment. | 7 |
| 12.3 The system jumps to the 16 th step. | N/A |
| 13. The system asks, "Fill the credit card info". | 9 |
| 14. The customer fills the payment info. | 9 |
| 15. The system verifies the payment info. | 10 |
| 16. The system prints out payment info. | 10 |

- | | |
|--------------------------------------------------------------|----|
| 17. The system asks for personal info. | 12 |
| 18. The system prints out a copy of repairing contract. | 12 |
| 19. The customer fills the contract and signs it. | 12 |
| 20. The system asks the customer to hand over the car's key. | 13 |
| 21. The System goes back to sleep. | 17 |

Value and Conditions of Case 3

Start condition: The customer pushes the button to start the system **(2)**

Stop condition: 21

Clear value: A costumer is able to turn over his/her car for repair without any human interference.

External initiator: The customer.

Word Analysis

USE CASE

1. A Customer comes to the BRR System's Machine.
2. The customer pushes the button to start the system.
3. The system says, "Welcome to FRY Automotive System".
4. The system says, "Please write down the specs of the car you would like to purchase?".
- 4.1 The system says, "Please say hello to use our vocal system".
- 4.2 The customer says hello to trigger the vocal system.
- 4.3 The system says "Please tell me what kind of car would you like to purchase".
- 4.4 The customer says the specs of the car they would like to purchase.
5. The customer inputs specs of the car they want to buy.
6. The system shows information about the car.
7. The system asks, "Would you like to take it on a ride?".
8. The customer selects the yes button.
- 8.1 The customer selects the "NO" button.
- 8.2 The system goes back to the 4th step.
9. The system gives the car's key and a note that informs the car's parking spot.
10. The customer takes the car on a ride.
11. The customer comes back to the selling machine.
12. The system asks, "Do you want to buy this car?".
13. The customer selects the yes button.
- 13.1 The customer selects the "NO" button.
- 13.2 The system goes back to the 4th step.
14. The system asks, "How would you like to proceed the payment?".
15. The customer proceeds payment with credit card"
- 15.1 The customer chooses to make the payment with a monthly installment.
- 15.2 The system jumps to 16th step.
- 15.1.1 The customer chooses to trade their old car.
- 15.1.2 The system shows trading system's conditions.
- 15.1.3 The system jumps to 20th step.
16. The system asks, "Fill the credit card info".
17. The customer fills the payment info.
18. The system verifies the payment info.
19. The system printsout payment info.
20. The system asks for personal info.
21. The system prints out a copy of a contract.
22. The customer fills the contract and signs it.
23. The system gives the key of the car that the customer bought.
24. The customer drives the car away happily.

Noun Analysis		Verb Analysis	
Candidate	Class?	Candidate	Method?
Customer	YES	Comes	NO
BRRMachine	NO	Pushes	NO
StartButton	NO	Start	NO
TheBRRSYSTEM	YES	Says	NO
CarManager	YES	Write	NO
VocalSystem	NO	Trigger	NO
Car (INTERFACE)	YES	Tell	NO
Information	NO	Purchase	NO
Yes/No button	NO	Inputs	NO
Keys	NO	Shows	YES
InfoNote	NO	Asks	NO
ParkingSpot	NO	Selects	NO
Payment	YES	Take	NO
CreditCardPyment	YES	Goes	NO
MonthlyInstallment	NO	Gives	NO
OldCar	NO	Informs	NO
TradeConditions	NO	Comes	NO
PersonalInfo	NO	WantToBuy	NO
Contract	YES	Jumps	NO
Offer	YES	Trade	NO
CashPyment	YES	Fill	NO
		Verifies	YES
		Prints	NO
		Signs	NO
		Gives	NO
		Drives	NO
		Proceeds	NO

Use Case diagram



UML Design

[Source code](#)

