CustomerID	Name	Surname	Title	Address	CustID	BID	ReturnedDate
1	Mohammed	Abraham	Mr	2 Jean Drive	4	2	2020/12/14
2	Abby	Smith	Ms	514 Mackenzie St	9	4	2020/08/06
3	Refiloe	Molete	Mrs	6 Joker St	15	6	2021/02/14
4	Corlize	van Heerden	Ms	12 Lotus Ave	14	7	2021/01/11
5	Simone	Fourie	Dr	2 Duncan St		****	
6	Samantha	Hanna	Mrs	34 Lynwood St			
7	Rebecca	Duncan	Ms	111 Bondev Drive			
8	Gary	Lou	Mr	5555 Rands St	Returned Car		
9	Ronald	Wang	Prof	65 Quinton Ave	metalined_cal		
10	Fatima	Vallee	Ms	987 Sabie Road	CustID	CID	ReturnedDate
11	Thando	Moloi	Dr	9 Lira St	4	2	2020/12/14
12	Sphesihle	Mangena	Ms	3333 Warden St	8	3	2020/02/16
13	Daniel	Alberts	Mrs	3 Peso St	9	4	2020/08/06
14	Jason	Mackenzie	Mr	98 Theo St	4	7	2020/12/14
15	Michael	Nouwens	Mr	18 De Villiers St			
•		Red Mercedez AMG		020			
CarlD		Description	1	'earModel	CustID	CID	RentedDate
1					1	1	2021/11/11
		White BMW X5					
		Crou Mini Conner ICM		020	4	2	2020/11/09
3		Grey Mini Cooper JCW		020	8	3	2020/11/09 2020/02/14
2 3 4		Silver Toyota Corolla	- 2	015			
3 4 5		Silver Toyota Corolla Yellow Honda Jazz Spor	t 2	015 021	8	3	2020/02/14
3 4		Silver Toyota Corolla	t i	015	8	3 4	2020/02/14 2020/06/06
3 4 5 6		Silver Toyota Corolla Yellow Honda Jazz Spor Blue Nissan Amra	t i	015 021 018	8 9 14	3 4 5	2020/02/14 2020/06/06 2021/11/11
3 4 5 6 7		Silver Toyota Corolla Yellow Honda Jazz Spor Blue Nissan Amra Orange Toyota Hilux	t 2	015 021 018 020	8 9 14 1	3 4 5 6	2020/02/14 2020/06/06 2021/11/11 2021/01/01
3 4 5 6 7 Motorbikes		Silver Toyota Corolla Yellow Honda Jazz Spor Blue Nissan Amra Orange Toyota Hilux Type	t 2	015 021 018 020	8 9 14 1 4	3 4 5 6	2020/02/14 2020/06/06 2021/11/11 2021/01/01
3 4 5 6 7 Aotorbikes BikelD		Silver Toyota Corolla Yellow Honda Jazz Spor Blue Nissan Amra Orange Toyota Hilux Type Ducati V4S	t i	015 021 018 020 020	8 9 14 1	3 4 5 6	2020/02/14 2020/06/06 2021/11/11 2021/01/01
3 4 5 6 7 7 Aotorbikes BikelD 1 2		Silver Toyota Corolla Yellow Honda Jazz Spor Blue Nissan Amra Orange Toyota Hilux Type Ducati V4S BMW S1000RR	t i	015 021 018 020 020 earModel 021 020	8 9 14 1 4 Customer_Bike	3 4 5 6 7	2020/02/14 2020/06/06 2021/11/11 2021/01/01 2020/11/09
3 4 5 6 6 7 7 Aotorbikes BikelD 1 2 3 3		Silver Toyota Corolla Yellow Honda Jazz Spou Blue Nissan Amra Orange Toyota Hilux Type Ducati V4S BMW S1000RR Honda Fireblade SP	t	015 021 018 020 earModel 021 020 018	8 9 14 1 1 4 Customer_Bike CustID	3 4 5 5 6 7 7 BID	2020/02/14 2020/06/06 2021/11/11 2021/01/01 2020/11/09
3 4 5 5 6 6 7 7 Motorbikes BikelD 1 2 2 3 4 4		Silver Toyota Corolla Yellow Honda Jazz Silven Maria Orange Toyota Hilux Type Ducati V4S BMW S1000RR Honda Fireblade SP Yamaha Y2F-R1M	t	015 021 018 020 earModel 021 020 018	8 9 14 1 1 4 Customer_Bike CustOD 1	3 4 5 5 6 6 7 7 BID 1	2020/02/14 2020/06/06 2021/11/11 2021/01/01 2020/11/09 RentedDate 2021/11/11
3 4 5 5 6 6 7 Aotorbikes BikelD 1 2 2 3 4 5 5 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		Silver Toyota Corolla Yellow Honda Jazz Spou Blue Nissan Amra Orange Toyota Hilux Type Ducati V4S BMW S1000RR Honda Fireblade SP	t i	015 021 018 020 earModel 021 021 021 020 018 015	8 9 14 1 1 4 4	3 4 5 5 6 7 7 8 BID 1 2 2	2020/02/14 2020/06/06 2021/11/11 2021/01/01 2020/11/09 RentedDate 2021/11/11 2020/12/10
3 4 5 5 6 7 7 Aotorbikes BikelD 1 2 3 4 4 5 5		Silver Toyota Corolla Yellow Honda Jazz Spoi Blue Nissan Amra Orange Toyota Hilux Type Ducati V4S BMW \$1000RR Honda Fireblade SP Yamaha YZF-R1M Kawasaki Ninja H2 Kawasaki ZX-10R SE	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	015 021 021 028 020 earModel 021 020 018 015 017	8 9 14 1 4 1 4	3 4 5 5 6 6 7 7 BID 1 1 2 3 3	2020/02/14 2020/06/06 2021/11/11 2021/01/01 2020/11/09 RentedDate 2021/11/11 2020/12/10 2020/12/10
3 4 5 6 7 Aotorbikes BikelD		Silver Toyota Corolla Yellow Honda Jazz Spor Blue Nissan Amra Orange Toyota Hilux Type Ducati V4S BMW S1000RR Honda Fireblade SP Yamaha YZF-R1M Kawasaki Ninja H2	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	015 021 018 020 earModel 021 021 021 020 018 015	8 9 14 1 1 4	3 4 5 5 6 7 7 8 BID 1 1 2 3 3 4 4	2020/02/14 2020/06/06 2021/11/11 2021/01/01 2020/11/09 RentedDate 2021/11/11 2020/12/10 2020/08/14 2020/07/06
3 4 5 6 7 7 Alotorbikes BikelD 1 2 3 4 5 5		Silver Toyota Corolla Yellow Honda Jazz Spoi Blue Nissan Amra Orange Toyota Hilux Type Ducati V4S BMW \$1000RR Honda Fireblade SP Yamaha YZF-R1M Kawasaki Ninja H2 Kawasaki ZX-10R SE	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	015 021 021 028 020 earModel 021 020 018 015 017	S 9 14 1 1 4 1 4 1 4 1 4 1 1	3 4 5 5 6 6 7 7 BID 1 1 2 3 3	2020/02/14 2020/06/06 2021/11/11 2021/01/01 2020/11/09 RentedDate 2021/11/11 2020/11/101 2020/02/10 2020/02/10 2020/02/10 2020/02/10 2020/02/10
3 4 5 6 7 7 Alotorbikes BikelD 1 2 3 4 4 5		Silver Toyota Corolla Yellow Honda Jazz Spoi Blue Nissan Amra Orange Toyota Hilux Type Ducati V4S BMW \$1000RR Honda Fireblade SP Yamaha YZF-R1M Kawasaki Ninja H2 Kawasaki ZX-10R SE	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	015 021 021 028 020 earModel 021 020 018 015 017	8 9 14 1 1 4	3 4 5 5 6 7 7 8 BID 1 1 2 3 3 4 4	2020/02/14 2020/06/06 2021/11/11 2021/01/01 2020/11/09 RentedDate 2021/11/11 2020/12/10 2020/08/14 2020/07/06

Returned Bike

Figure 2: Database state

- open cmd and navigate to the extracted ra-2.2b folder and type java -jar ra.jar uXXXXXXXX_CARRENTALS.properties
 You should be able to get RA running after successfully executing this command.
- type the command \list; in the prompt to see the tables you created.

- 1. List the names of all the customers who have rented more than one Car and display the number of Cars that they have rented.
- 2. Display the Type and Year Model of the Bike with the oldest Year Model.
- 3. List the names of all the customers who have rented at least one Bike but no Cars.
- 4. List the names of all the customers who have not rented any Cars.

You are also required to specify and execute the following queries both in SQL and in relational algebra using the RA interpreter on the CARRENTALS database schema.

5. List all the Cars released in 2020.

Customer

- 6. List the type of all the bikes released in 2020 that have been rented by the Mackenzie family.
- 7. List the names of all the customers who are renting a Bike on the same day that "Kawasaki ZX-10R SE" was rented and not yet returned.

Note: Please refer to the RA documentation at https://users.cs.duke.edu/~junyang/radb/basic.html and the notes to familiarise yourself with the relevant commands for interacting with your database most appropriately

placed in a separate text file, one for your SQL queries and one for the RA queries. If you use the ra_file