

Adolfo Pozos Garcia

NN: 70

Memo 1 Functional Dependencies:

SpeciesCode \rightarrow AveragePHT AveragePHT \rightarrow SpeciesCode

RegionID \rightarrow Size Size \rightarrow RegionID

StudyName \rightarrow RegionID, StudyID, Size

StudyID \rightarrow StudyName, Size, RegionID Location \rightarrow RegionID, Size

SampleNumber \rightarrow SpeciesCode, RegionID, StudyName, StudyID, Size, ClassID, AveragePHT, PHTvalue, animalNumber, sameplDate, sex, status

Memo 3 Functional Dependencies:

SpeciesCode \rightarrow AveragePHT AveragePHT \rightarrow SpeciesCode

RegionID \rightarrow Size StudyName \rightarrow RegionID, StudyID, Size

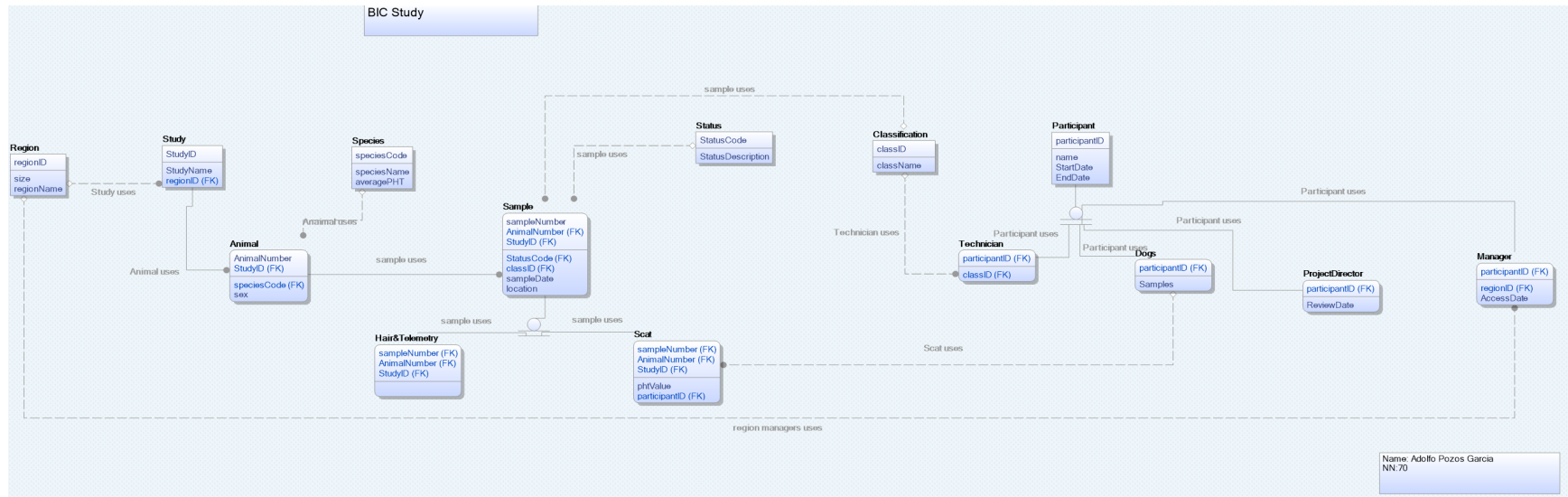
StudyID \rightarrow StudyName, RegionID, Size Location \rightarrow RegionID, Size

PHTvalue \rightarrow SpeciesCode, Size, ClassID, AveragePHT

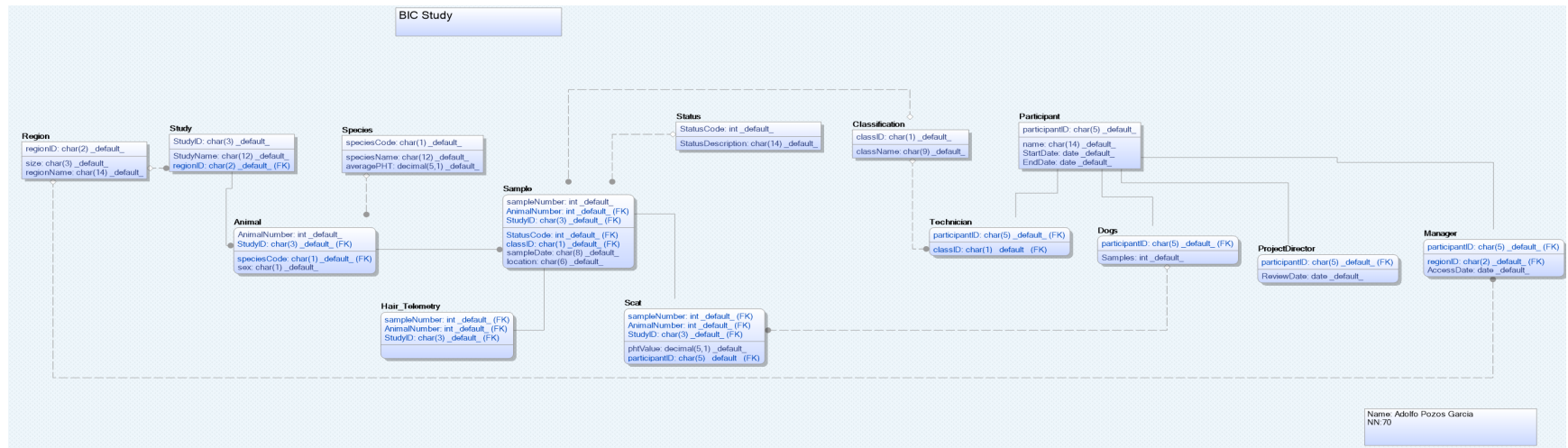
ParticipantID \rightarrow classID SampleNumber \rightarrow status

Final LDM & PDM:

LDM



PDM:



Insert Statements and select * result:

```
INSERT INTO Region (regionID, size, regionName) VALUES ('NR', '9x9', 'North Region');
```

```
INSERT INTO Region (regionID, size, regionName) VALUES ('SR', '5x5', 'South Region');
```

```
INSERT INTO Region (regionID, size, regionName) VALUES ('CR', '9x9', 'Central Region');
```

```
Select * from Region;
```

regionID,size,regionName

CR,9x9,Central Region

NR,9x9,"North Region "

SR,5x5,"South Region "

1

Select * from Region;

Results

Messages

	regionID	size	regionName
1	CR	9x9	Central Region
2	NR	9x9	North Region
3	SR	5x5	South Region

```
INSERT INTO Study (StudyID, StudyName, regionID) VALUES ('N22', 'North 2022', 'NR');
```

```
INSERT INTO Study (StudyID, StudyName, regionID) VALUES ('S22', 'South 2022', 'SR');
```

```
INSERT INTO Study (StudyID, StudyName, regionID) VALUES ('C22', 'Central 2022', 'CR');
```

```
INSERT INTO Study (StudyID, StudyName, regionID) VALUES ('C23', 'Central 2022', 'CR');
```

```
Select * from Study;
```

StudyID,StudyName,regionID

C22,Central 2022,CR

C23,Central 2022,CR

N22,"North 2022 ",NR

S22,"South 2022 ",SR

1 `Select * from Study;`

Results

Messages

	StudyID ▾	StudyName ▾	regionID ▾
1	C22	Central 2022	CR
2	C23	Central 2022	CR
3	N22	North 2022	NR
4	S22	South 2022	SR

```
INSERT INTO Species (speciesCode, speciesName, averagePHT) VALUES ('B', 'Black bear', 113);
```

```
INSERT INTO Species (speciesCode, speciesName, averagePHT) VALUES ('G', 'Grizzly bear', 142);
```

```
INSERT INTO Species (speciesCode, speciesName, averagePHT) VALUES ('U', 'Undetermined', NULL);
```

```
Select * from Species;
```

speciesCode,speciesName,averagePHT

B,"Black bear ",113.0

G,Grizzly bear,142.0

U,Undetermined,NULL

1 `Select * from Species;`

Results Messages

	speciesCode	speciesName	averagePHT
1	B	Black bear	113.0
2	G	Grizzly bear	142.0
3	U	Undetermined	NULL

```
INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (42, 'N22', 'B', 'M');
```

```
INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (89, 'S22', 'B', 'F');
```

```
INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (59, 'C22', 'B', 'M');
```

```
INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (113, 'C22', 'G', 'F');
```

```
INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (59, 'C23', 'B', 'F');
```

```
INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (50, 'C23', 'B', '?');
```

```
INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (118, 'N22', 'B', 'F');
```

```
INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (112, 'C23', 'G', 'M');
```

```
INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (66, 'C22', 'G', 'F');
```

```
INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (66, 'N22', 'U', '?');
```

```
INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (66, 'S22', 'B', 'M');
```

INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (42, 'N22', 'B', 'M');

INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (113, 'N22', 'G', 'F');

INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (63, 'S22', 'B', 'M');

INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (114, 'C22', 'G', 'M');

INSERT INTO Animal (AnimalNumber, StudyID, speciesCode, sex) VALUES (114, 'C22', 'G', '?');

Select * from Animal;

AnimalNumber,StudyID,speciesCode,sex

42,N22,B,M

50,C23,B,?

59,C22,B,M

59,C23,B,F

63,S22,B,M

66,C22,G,F

66,N22,U,?

66,S22,B,M

89,S22,B,F

112,C23,G,M

113,C22,G,F

113,N22,G,F

114,C22,G,M

1 `Select * from Animal;;`

Results Messages

	AnimalNumber	StudyID	speciesCode	sex
1	42	N22	B	M
2	50	C23	B	?
3	59	C22	B	M
4	59	C23	B	F
5	63	S22	B	M
6	66	C22	G	F
7	66	N22	U	?
8	66	S22	B	M
9	89	S22	B	F
1...	112	C23	G	M
1...	113	C22	G	F
1...	113	N22	G	F
1...	114	C22	G	M
1...	118	N22	B	F

118,N22,B,F

```
INSERT INTO Status (StatusCode, StatusDescription) VALUES (0, 'Sample used up');
```

```
INSERT INTO Status (StatusCode, StatusDescription) VALUES (1, 'Sample exists');
```

```
Select * from Status;
```

StatusCode,StatusDescription

0,Sample used up

1,"Sample exists "

```
INSERT INTO Classification (classID,  
className) VALUES ('S', 'Scat');
```

```
INSERT INTO Classification (classID, className) VALUES ('T', 'Telemetry');
```

```
INSERT INTO Classification (classID, className) VALUES ('H', 'Hair snag');
```

```
Select * from Classification;
```

classID,className

H,Hair snag

S,"Scat "

T,Telemetry

1	Select * from Status;
Results Messages	
	StatusCode ▼ StatusDescription ▼
1	0 Sample used up
2	1 Sample exists

1	Select * from Classification;
Results Messages	
	classID ▼ className ▼
1	H Hair snag
2	S Scat
3	T Telemetry

```
INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID,  
sampleDate, location) VALUES (17, 42, 'N22', 1, 'S', 'Jul 2022', '05:8:3');
```

```
INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID,  
sampleDate, location) VALUES (22, 89, 'S22', 1, 'T', 'Nov 2022', '93:2:4');
```

```
INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID,  
sampleDate, location) VALUES (44, 59, 'C22', 0, 'T', 'Sep 2022', '32:1:9');
```

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (45, 113, 'C22', 0, 'H', 'Oct 2022', '40:1:1');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (47, 59, 'C22', 0, 'T', 'Sep 2022', '41:2:3');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (48, 59, 'C23', 1, 'S', 'Sep 2023', '34:4:4');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (56, 50, 'C23', 1, 'S', 'Jul 2023', '40:1:1');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (59, 118, 'N22', 1, 'S', 'Jun 2022', '07:1:2');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (79, 112, 'C23', 1, 'S', 'Jul 2023', '32:5:5');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (82, 66, 'C22', 0, 'T', 'Nov 2022', '31:5:8');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (100, 66, 'N22', 0, 'S', 'Jul 2022', '01:1:9');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (68, 66, 'S22', 0, 'H', 'Jul 2022', '80:3:2');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (27, 42, 'N22', 1, 'S', 'Aug 2022', '15:2:6');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (11, 113, 'N22', 0, 'S', 'Jul 2022', '19:4:7');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (45, 63, 'S22', 0, 'S', 'Jul 2022', '90:3:4');

INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID, sampleDate, location) VALUES (17, 114, 'C22', 1, 'T', 'Oct 2022', '40:4:1');


```
INSERT INTO Sample (sampleNumber, AnimalNumber, StudyID, StatusCode, classID,
sampleDate, location) VALUES (18, 114, 'C22', 1, 'S', 'Oct 2022', '40:4:1');
```

```
Select * from Sample;
```

```
sampleNumber,AnimalNumber,StudyID,StatusCode,classID,sampleDate,location
```

```
11,113,N22,0,S,Jul 2022,19:4:7
```

```
17,42,N22,1,S,Jul 2022,05:8:3
```

```
17,114,C22,1,T,Oct 2022,40:4:1
```

```
18,114,C22,1,S,Oct 2022,40:4:1
```

```
22,89,S22,1,T,Nov 2022,93:2:4
```

```
27,42,N22,1,S,Aug 2022,15:2:6
```

```
44,59,C22,0,T,Sep 2022,32:1:9
```

```
45,63,S22,0,S,Jul 2022,90:3:4
```

```
45,113,C22,0,H,Oct 2022,40:1:1
```

```
47,59,C22,0,T,Sep 2022,41:2:3
```

```
48,59,C23,1,S,Sep 2023,34:4:4
```

```
56,50,C23,1,S,Jul 2023,40:1:1
```

```
59,118,N22,1,S,Jun 2022,07:1:2
```

```
68,66,S22,0,H,Jul 2022,80:3:2
```

```
79,112,C23,1,S,Jul 2023,32:5:5
```

```
82,66,C22,0,T,Nov 2022,31:5:8
```

```
100,66,N22,0,S,Jul 2022,01:1:9
```

1 Select * from Sample;								
Results Messages								
	sampleNumber	AnimalNumber	StudyID	StatusCode	classID	sampleDate	location	
1	11	113	N22	0	S	Jul 2022	19:4:7	
2	17	42	N22	1	S	Jul 2022	05:8:3	
3	17	114	C22	1	T	Oct 2022	40:4:1	
4	18	114	C22	1	S	Oct 2022	40:4:1	
5	22	89	S22	1	T	Nov 2022	93:2:4	
6	27	42	N22	1	S	Aug 2022	15:2:6	
7	44	59	C22	0	T	Sep 2022	32:1:9	
8	45	63	S22	0	S	Jul 2022	90:3:4	
9	45	113	C22	0	H	Oct 2022	40:1:1	
10	47	59	C22	0	T	Sep 2022	41:2:3	
11	48	59	C23	1	S	Sep 2023	34:4:4	
12	56	50	C23	1	S	Jul 2023	40:1:1	
13	59	118	N22	1	S	Jun 2022	07:1:2	
14	68	66	S22	0	H	Jul 2022	80:3:2	
15	79	112	C23	1	S	Jul 2023	32:5:5	
16	82	66	C22	0	T	Nov 2022	31:5:8	
17	100	66	N22	0	S	Jul 2022	01:1:9	

```
INSERT INTO Hair_Telemetry (sampleNumber, AnimalNumber, StudyID) VALUES (22, 89, 'S22');
```

```
INSERT INTO Hair_Telemetry (sampleNumber, AnimalNumber, StudyID) VALUES (44, 59, 'C22');
```

```
INSERT INTO Hair_Telemetry (sampleNumber, AnimalNumber, StudyID) VALUES (45, 113, 'C22');
```

```
INSERT INTO Hair_Telemetry (sampleNumber, AnimalNumber, StudyID) VALUES (47, 59, 'C22');
```

```
INSERT INTO Hair_Telemetry (sampleNumber, AnimalNumber, StudyID) VALUES (82, 66, 'C22');
```

```
INSERT INTO Hair_Telemetry (sampleNumber, AnimalNumber, StudyID) VALUES (68, 66, 'S22');
```

```
INSERT INTO Hair_Telemetry (sampleNumber, AnimalNumber, StudyID) VALUES (17, 114, 'C22');
```

```
Select * from Hair_Telemetry
```

sampleNumber,AnimalNumber,StudyID

17,114,C22

22,89,S22

44,59,C22

45,113,C22

47,59,C22

68,66,S22

82,66,C22

1 <code>Select * from Hair_Telemetry;</code>			
Results		Messages	
	sampleNumber ▼	AnimalNumber ▼	StudyID ▼
1	17	114	C22
2	22	89	S22
3	44	59	C22
4	45	113	C22
5	47	59	C22
6	68	66	S22
7	82	66	C22

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('P2001', 'Bill Brown', '2022-02-14', NULL);
```

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('P2004', 'Jane Brown', '2022-02-14', NULL);
```

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('P2036', 'Frank Martin', '2020-08-15', '2022-01-01');
```

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('P2045', 'Anne Dough', '2021-06-12', NULL);
```

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('P2046', 'Mike Green', '2020-10-28', NULL);
```

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('P3070', 'Adolfo Pozos', '2024-12-02', NULL);
```

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('D0004', 'Max', '2022-06-01', NULL);
```

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('D0008', 'Sampson', '2022-02-05', NULL);
```

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('D0013', 'Cindy', '2021-12-10', '2022-12-20');
```

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('D0022', 'Rover', '2022-05-20', NULL);
```

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('P0000', 'Bob Bureaucrat', '2024-09-11', NULL);
```

```
INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('P0101', NULL, '2023-05-23', NULL);
```

INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('P0102', NULL, '2023-05-23', NULL);

INSERT INTO Participant (participantID, name, StartDate, EndDate) VALUES ('P0103', NULL, '2023-05-23', NULL);

Select * from Participant;

participantID,name,StartDate,EndDate

D0004,"Max",2022-06-01,NULL

D0008,"Sampson",2022-02-05,NULL

D0013,"Cindy",2021-12-10,2022-12-20

D0022,"Rover",2022-05-20,NULL

P0000,Bob Bureaucrat,2024-09-11,NULL

P0101,NULL,2023-05-23,NULL

P0102,NULL,2023-05-23,NULL

P0103,NULL,2023-05-23,NULL

P2001,"Bill Brown",2022-02-14,NULL

P2004,"Jane Brown",2022-02-14,NULL

P2036,"Frank Martin",2020-08-15,2022-01-01

P2045,"Anne Dough",2021-06-12,NULL

P2046,"Mike Green",2020-10-28,NULL

P3070,"Adolfo Pozos",2024-12-02,NULL

INSERT INTO Technician (participantID, classID) VALUES ('P2001', 'T');

INSERT INTO Technician (participantID, classID) VALUES ('P2004', 'H');

1 Select * from Participant;

Results		Messages		
	participantID	name	StartDate	EndDate
1	D0004	Max	2022-06-01	NULL
2	D0008	Sampson	2022-02-05	NULL
3	D0013	Cindy	2021-12-10	2022-12-20
4	D0022	Rover	2022-05-20	NULL
5	P0000	Bob Bureaucrat	2024-09-11	NULL
6	P0101	NULL	2023-05-23	NULL
7	P0102	NULL	2023-05-23	NULL
8	P0103	NULL	2023-05-23	NULL
9	P2001	Bill Brown	2022-02-14	NULL
1...	P2004	Jane Brown	2022-02-14	NULL
1...	P2036	Frank Martin	2020-08-15	2022-01-01
1...	P2045	Anne Dough	2021-06-12	NULL
1...	P2046	Mike Green	2020-10-28	NULL
1...	P3070	Adolfo Pozos	2024-12-02	NULL

INSERT INTO Technician (participantID, classID) VALUES ('P2036', 'T');

INSERT INTO Technician (participantID, classID) VALUES ('P2045', 'T');

INSERT INTO Technician (participantID, classID) VALUES ('P2046', 'H');

INSERT INTO Technician (participantID, classID) VALUES ('P3070', 'T');

Select * from Technician;

participantID,classID

P2001,T

P2004,H

P2036,T

P2045,T

P2046,H

P3070,T

1 Select * from Technician;

Results Messages

	participantID	classID
1	P2001	T
2	P2004	H
3	P2036	T
4	P2045	T
5	P2046	H
6	P3070	T

INSERT INTO Dogs (participantID, Samples) VALUES ('D0004', 3);

INSERT INTO Dogs (participantID, Samples) VALUES ('D0008', 3);

INSERT INTO Dogs (participantID, Samples) VALUES ('D0013', 2);

INSERT INTO Dogs (participantID, Samples) VALUES ('D0022', 2);

Select * from Dogs;

participantID,Samples

D0004,3

D0008,3

D0013,2

1 Select * from Dogs;

Results Messages

	participantID	Samples
1	D0004	3
2	D0008	3
3	D0013	2
4	D0022	2

D0022,2

```
INSERT INTO ProjectDirector  
(participantID, ReviewDate) VALUES  
NULL);
```

```
Select * from ProjectDirector;
```

```
participantID,ReviewDate
```

```
P0000,NULL
```

1 `Select * from ProjectDirector;` ('P0000',

Results

Messages

	participantID ▾	ReviewDate ▾
1	P0000	NULL

```
INSERT INTO Manager (participantID, regionID, AccessDate) VALUES ('P0101', 'NR', NULL);
```

```
INSERT INTO Manager (participantID, regionID, AccessDate) VALUES ('P0102', 'CR', NULL);
```

```
INSERT INTO Manager (participantID, regionID, AccessDate) VALUES ('P0103', 'SR', NULL);
```

```
Select * from Manager;
```

```
participantID,regionID,AccessDate
```

```
P0101,NR,NULL
```

```
P0102,CR,NULL
```

```
P0103,SR,NULL
```

1Select * from Manager;

Results

Messages

	participantID	regionID	AccessDate
1	P0101	NR	NULL
2	P0102	CR	NULL
3	P0103	SR	NULL

```
INSERT INTO Scat (sampleNumber, AnimalNumber, StudyID, phtValue, participantID) VALUES  
(17, 42, 'N22', 109, 'D0004');
```

```
INSERT INTO Scat (sampleNumber, AnimalNumber, StudyID, phtValue, participantID) VALUES  
(48, 59, 'C23', 100, 'D0013');
```

```
INSERT INTO Scat (sampleNumber, AnimalNumber, StudyID, phtValue, participantID) VALUES  
(56, 50, 'C23', 103.5, 'D0004');
```

```
INSERT INTO Scat (sampleNumber, AnimalNumber, StudyID, phtValue, participantID) VALUES
(59, 118, 'N22', 120, 'D0022');
```

```
INSERT INTO Scat (sampleNumber, AnimalNumber, StudyID, phtValue, participantID) VALUES
(79, 112, 'C23', 135, 'D0004');
```

```
INSERT INTO Scat (sampleNumber, AnimalNumber, StudyID, phtValue, participantID) VALUES
(100, 66, 'N22', NULL, 'D0022');
```

```
INSERT INTO Scat (sampleNumber, AnimalNumber, StudyID, phtValue, participantID) VALUES
(27, 42, 'N22', 115, 'D0008');
```

```
INSERT INTO Scat (sampleNumber, AnimalNumber, StudyID, phtValue, participantID) VALUES
(11, 113, 'N22', 135, 'D0008');
```

```
INSERT INTO Scat (sampleNumber, AnimalNumber, StudyID, phtValue, participantID) VALUES
(45, 63, 'S22', 117, 'D0013');
```

```
INSERT INTO Scat (sampleNumber, AnimalNumber, StudyID, phtValue, participantID) VALUES
(18, 114, 'C22', 150, 'D0004');
```

```
Select * from Scat;
```

sampleNumber,AnimalNumber,StudyID,phtValue,participantID

11,113,N22,135.0,D0008

17,42,N22,109.0,D0004

18,114,C22,150.0,D0004

27,42,N22,115.0,D0008

45,63,S22,117.0,D0013

48,59,C23,100.0,D0013

56,50,C23,103.5,D0004

1	Select * from Scat;				
Results		Messages			
	sampleNumber	AnimalNumber	StudyID	phtValue	participantID
1	11	113	N22	135.0	D0008
2	17	42	N22	109.0	D0004
3	18	114	C22	150.0	D0004
4	27	42	N22	115.0	D0008
5	45	63	S22	117.0	D0013
6	48	59	C23	100.0	D0013
7	56	50	C23	103.5	D0004
8	59	118	N22	120.0	D0022
9	79	112	C23	135.0	D0004
1...	100	66	N22	NULL	D0022

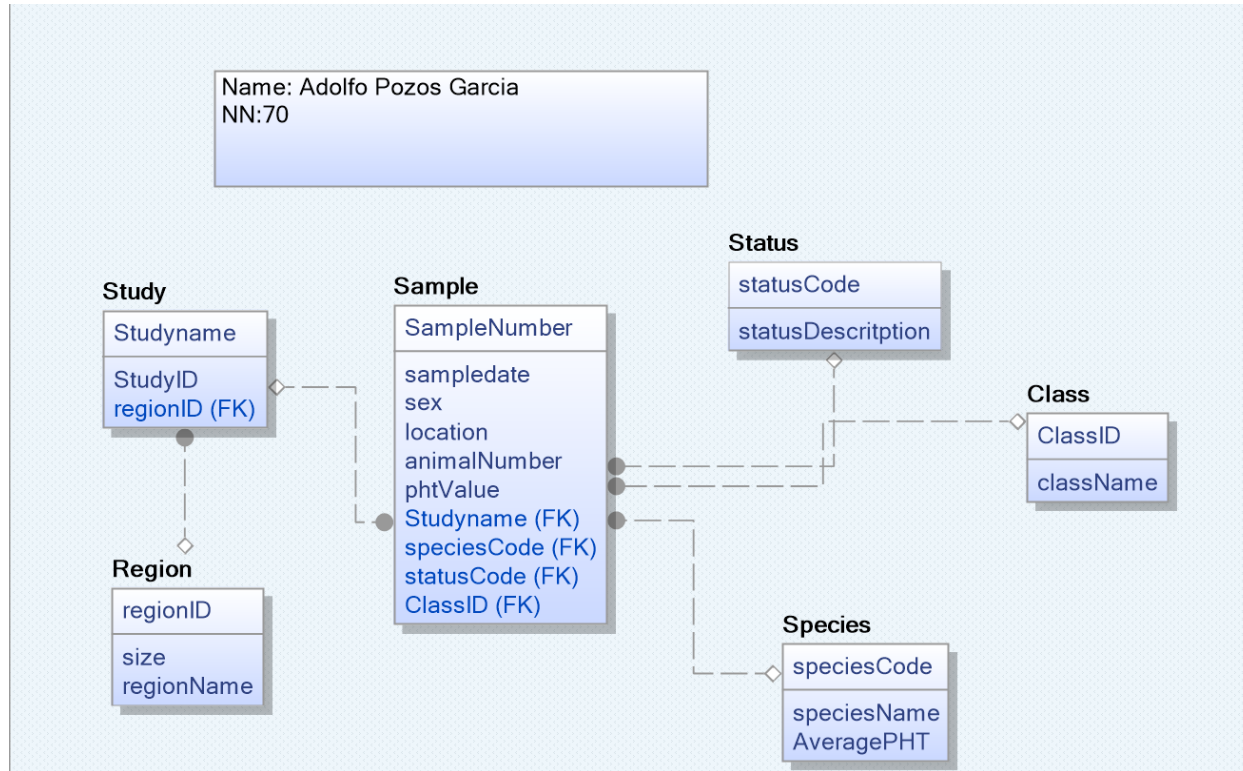
59,118,N22,120.0,D0022

79,112,C23,135.0,D0004

100,66,N22,NULL,D0022

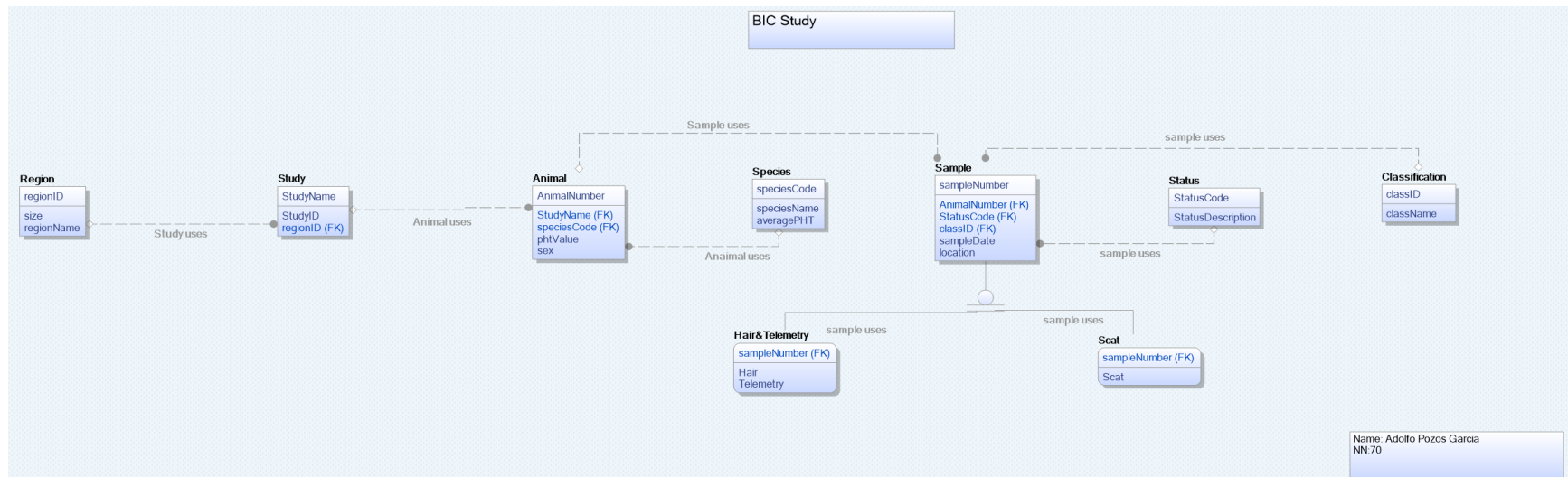
Appendix

Memo 2 LDM:



Memo 2R LDM and PDM:

LDM:



PDM:

