Palm Care

Palm Tree Disease Detection using Image Processing and AI

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Recap 1/2

TOP 10 LARGEST DATE PRODUCERS IN THE WORLD

Rank	Country	Production (1000 Metric Tonnes)
1.	Egypt	1,373.57
2.	Saudi Arabia	1,122.82
3.	Iran	1,016.61
4.	United Arab Emirates	900.00
5.	Algeria	690.00
6.	Iraq	619.18
7.	Pakistan	557.28
8.	Oman	268.01
9.	Tunisia	180.00
10	Libya	165.95

- Palm Trees are considered one of the most important trees especially in the Middle east and Egypt.
- There are about 2600 species of palm trees that produce more than 1000 products.

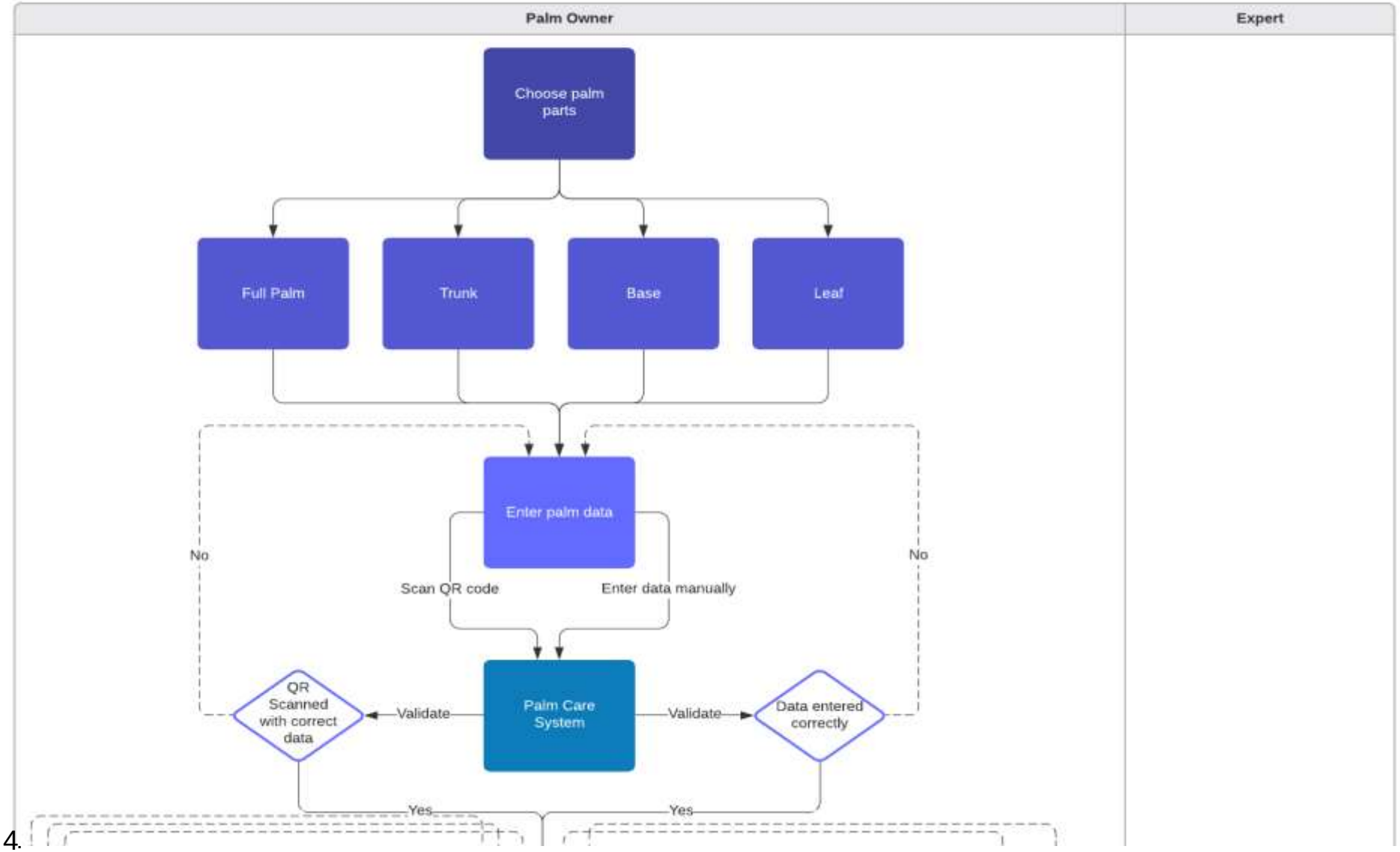
Recap 2/2

Leaf Spots

Blight Spots

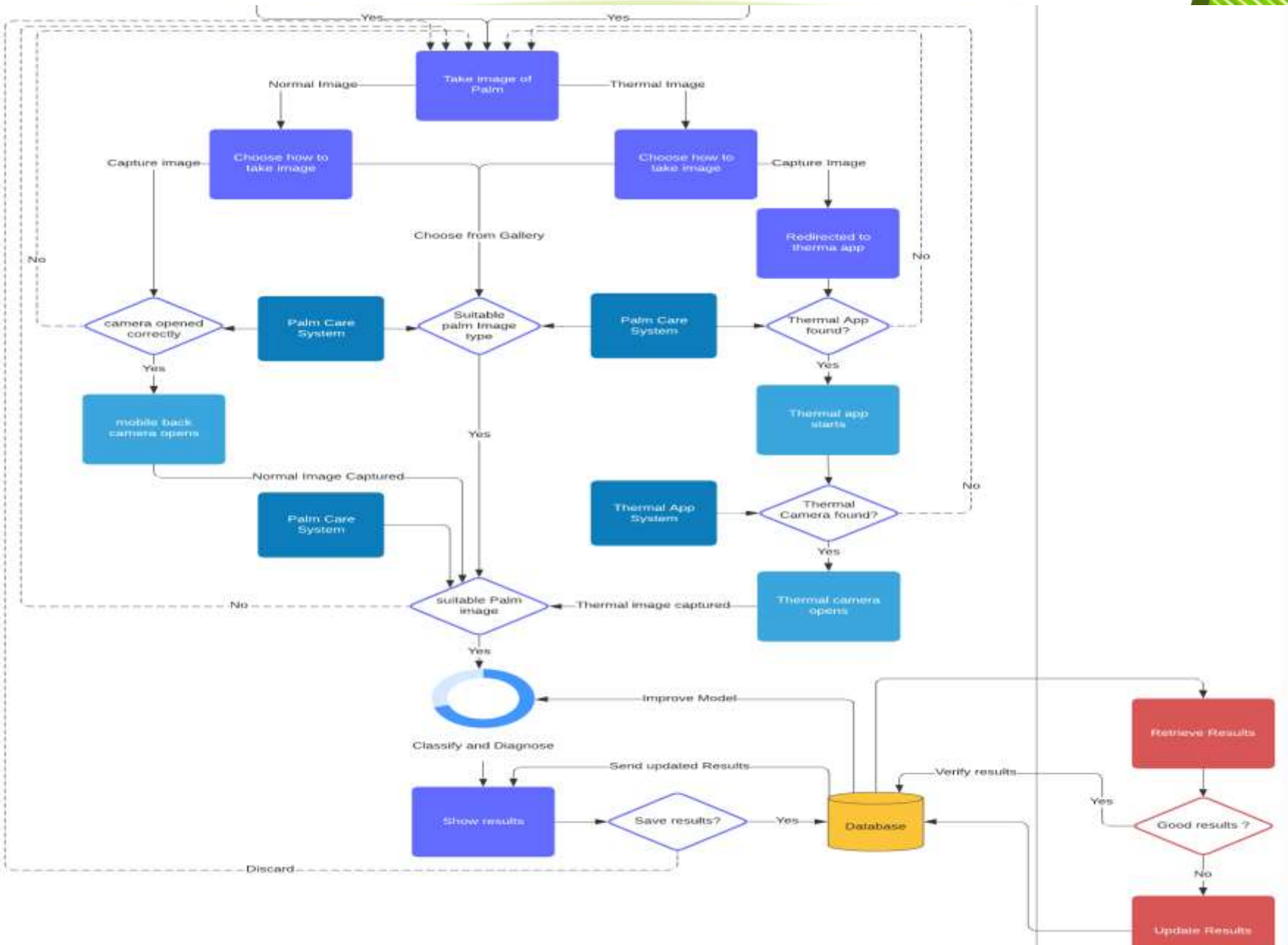
Red Palm Weevil

Process Diagram 1/2

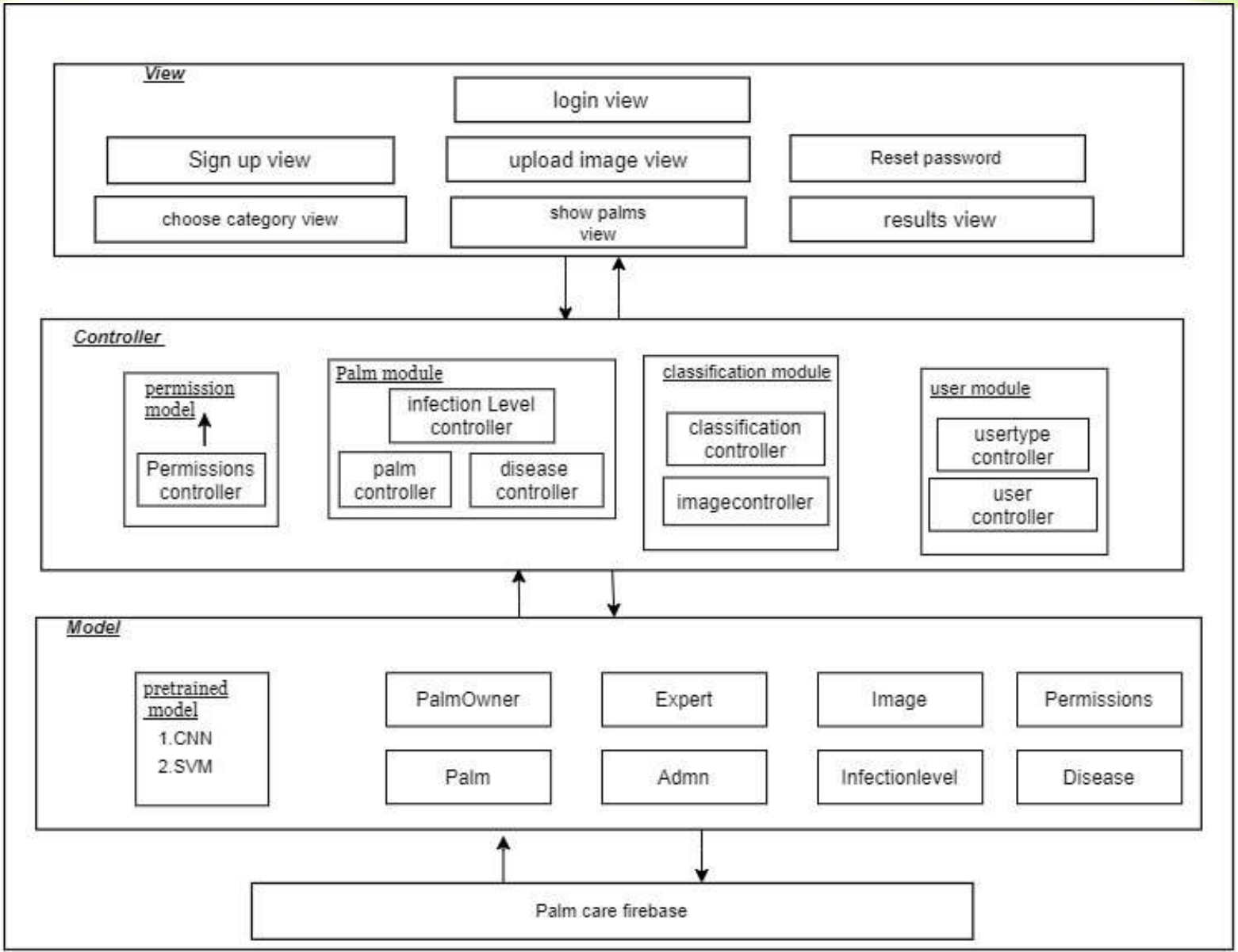


4.

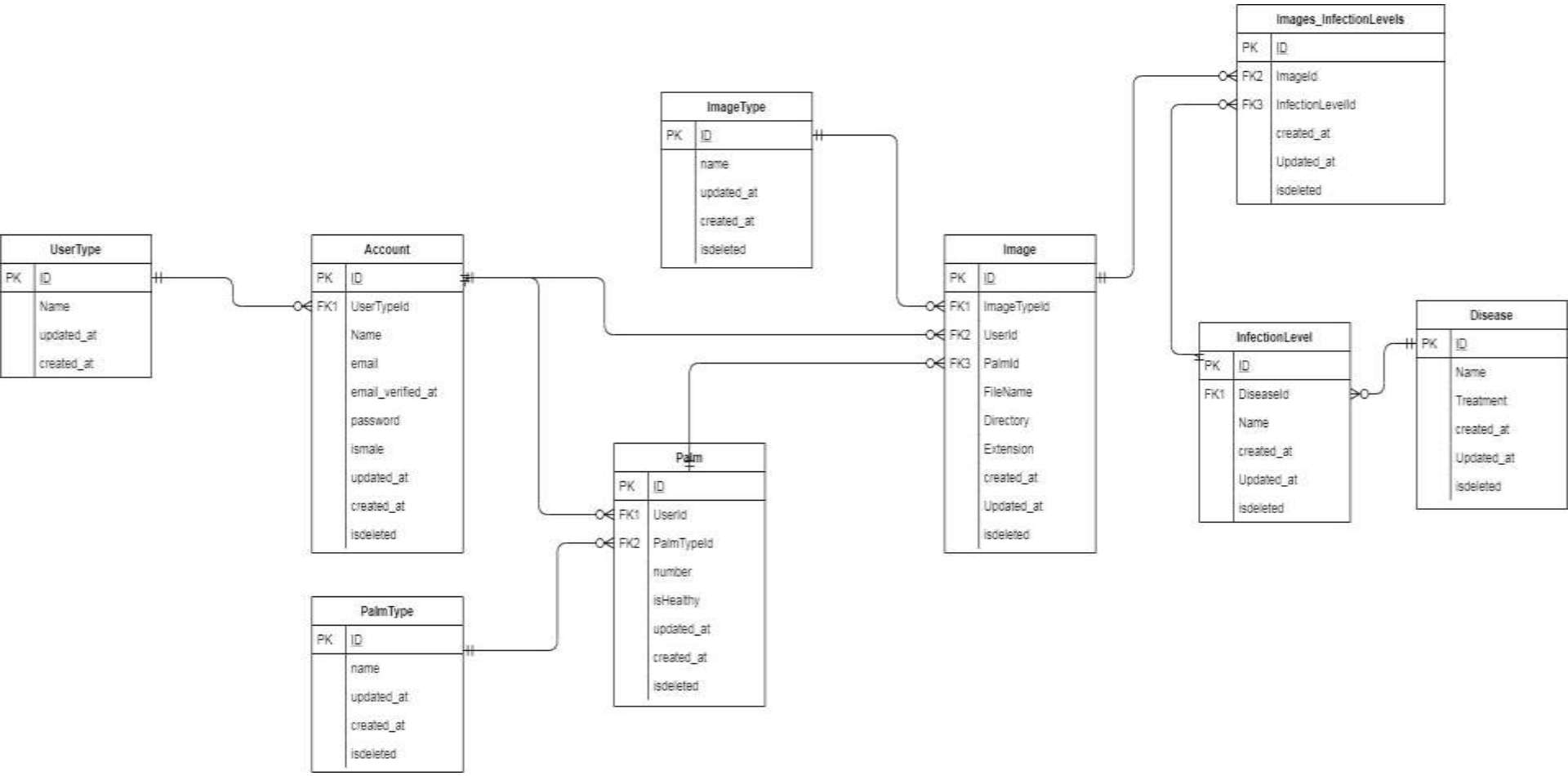
Process Diagram 2/2



System Architecture



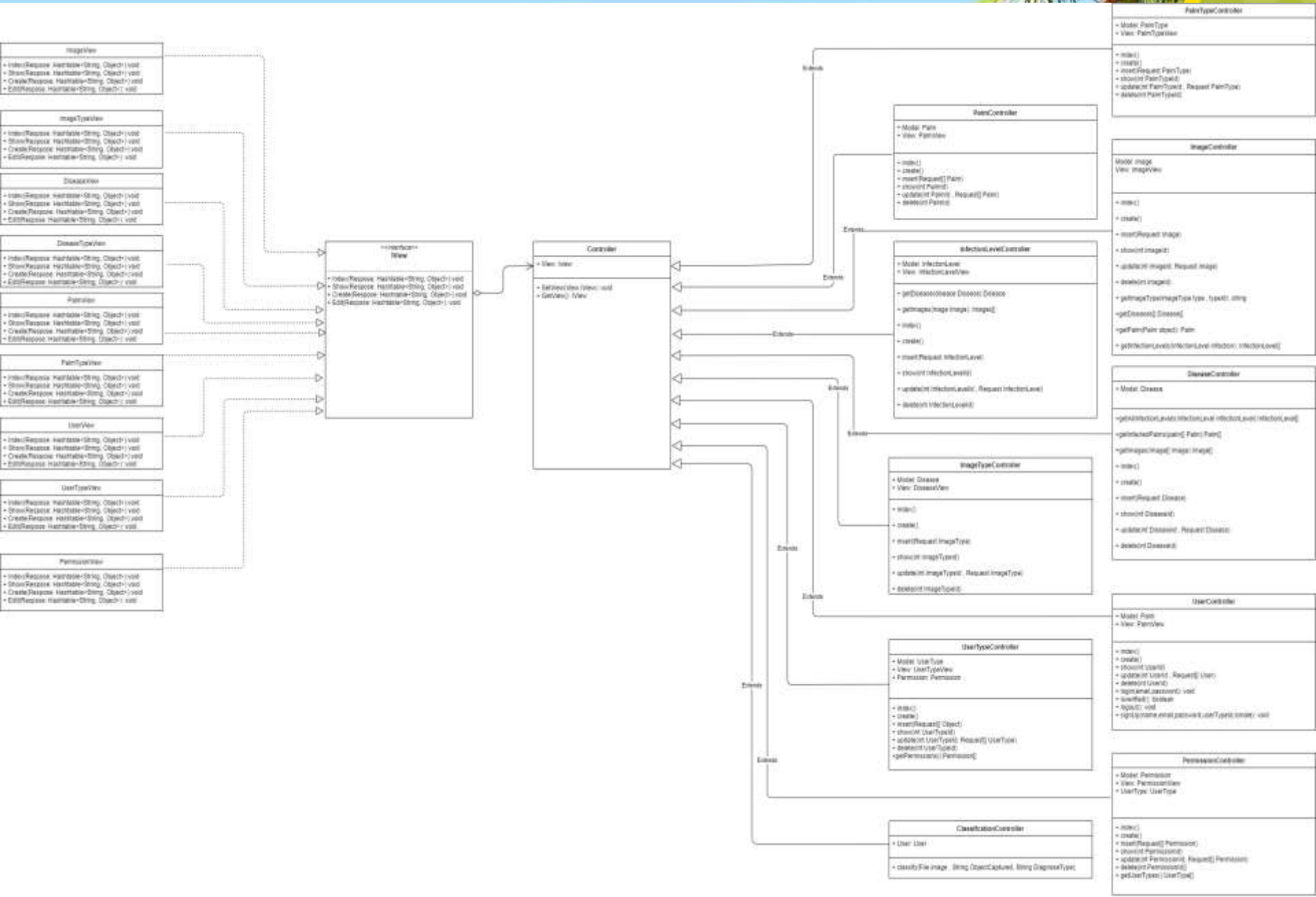
Database Diagram



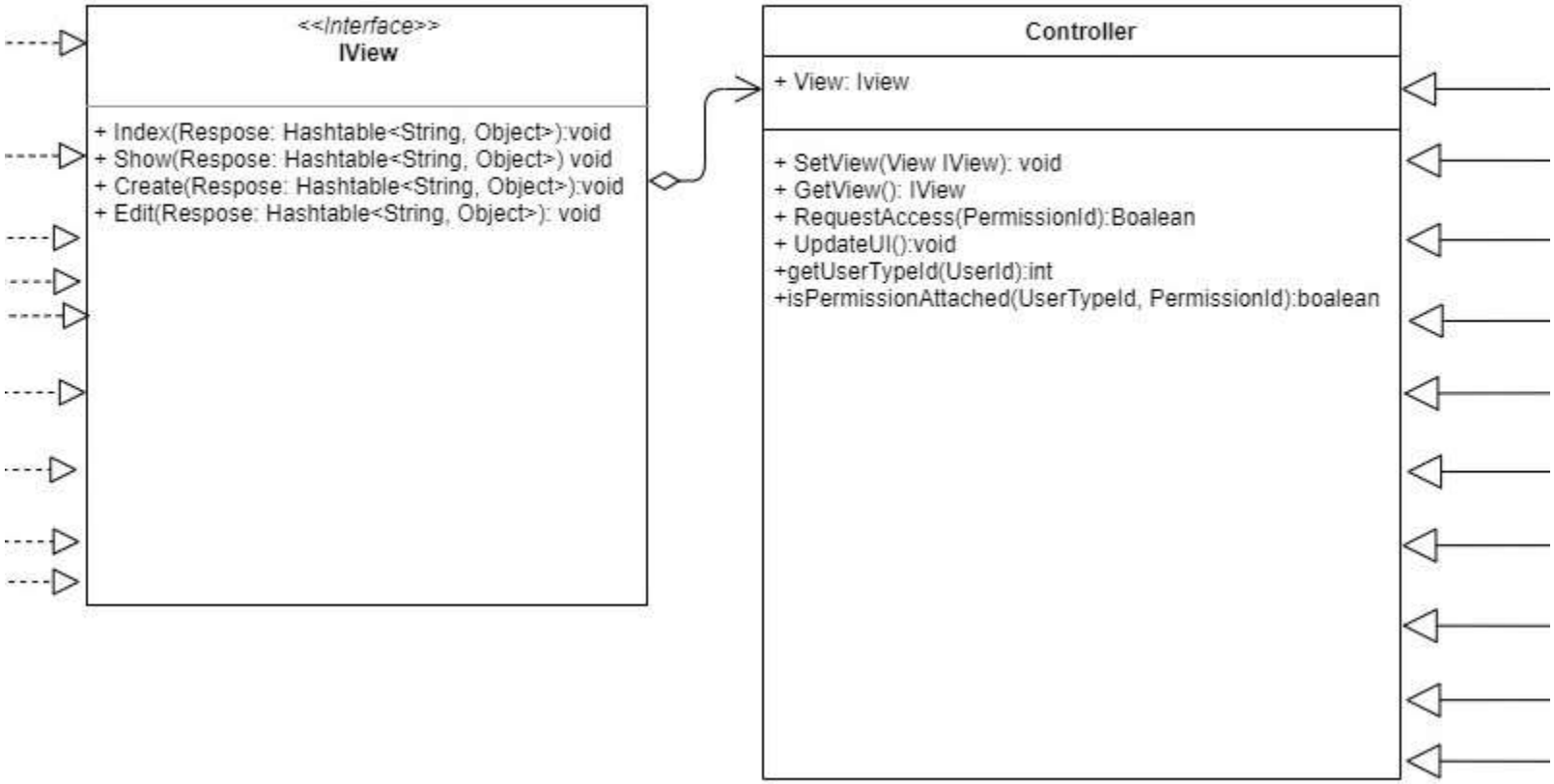
Requirement Matrix

Requirement ID	Requirement Type	Requirement Name	Requirement Description	Status
SR1	Required	*user registration*	*user register an account in Firebase*	Completed
AD3	Required	Delete User	Admin can delete any user from the storage	Completed
AC1	Required	Login	The system searches in the database for the email and password entered by the User *and opens to user his account in case the data entered matches the database records.*	Completed
PO1	Required	Add New Palm	Palm Owner can add new palm to his collection	Completed
AC5	Required	View Palm	*User can view specific palm.*	Completed
Img2	Required	Get Diseases	get diseases attached to the image.	In progress
AC6	Required	View Results	View the palm classifcation results.	Completed
EXP1	Required	Correct Result	Expert can correct all results obtained by the model.	In progress
CNN	Required	Classify	classify image using CNN Model.	Completed
IL1	Required	Get infection level	get the disease attached to specific infection level	In Progress

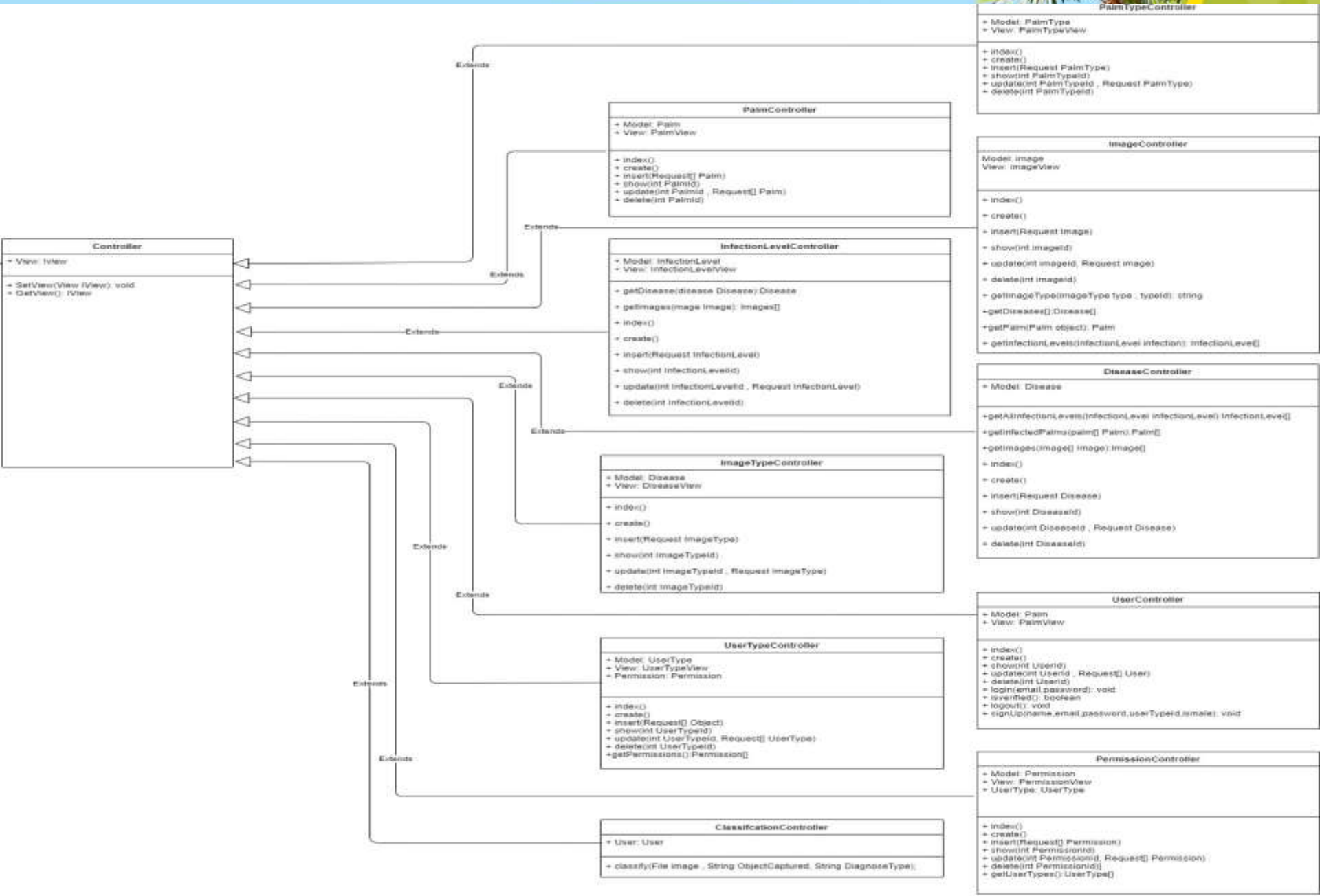
Class Diagram 1/4



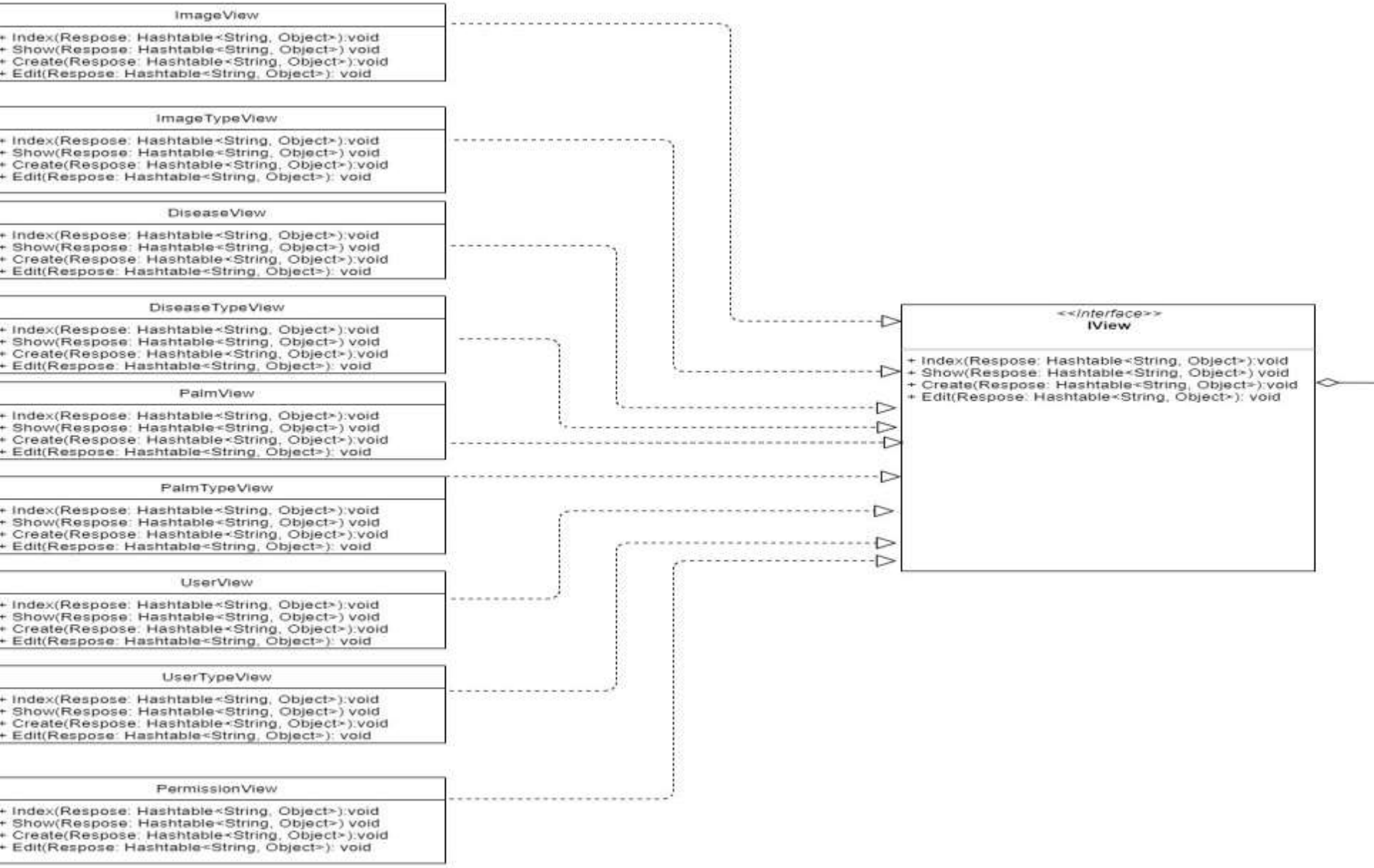
Class Diagram 2/4



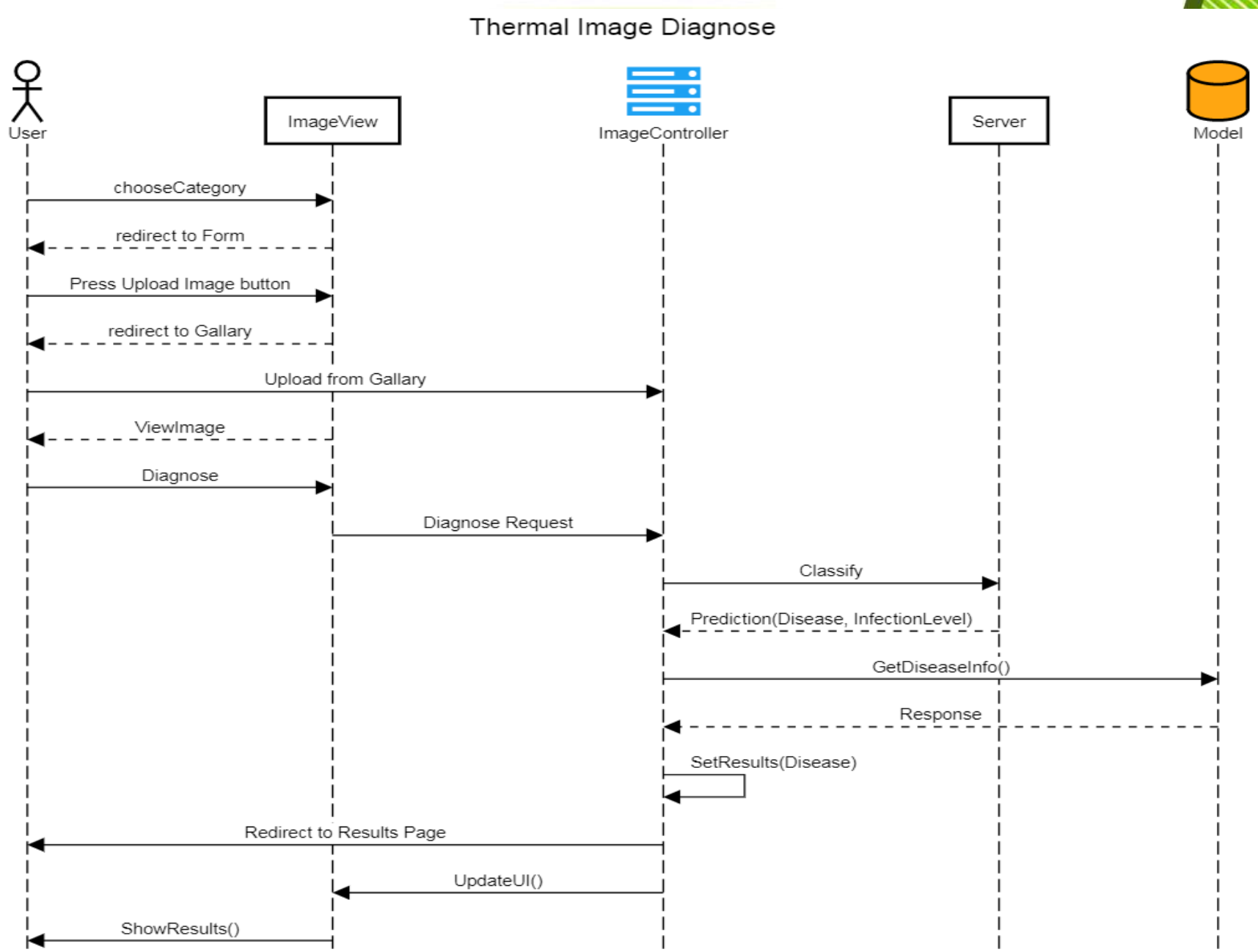
Class Diagram 3/4



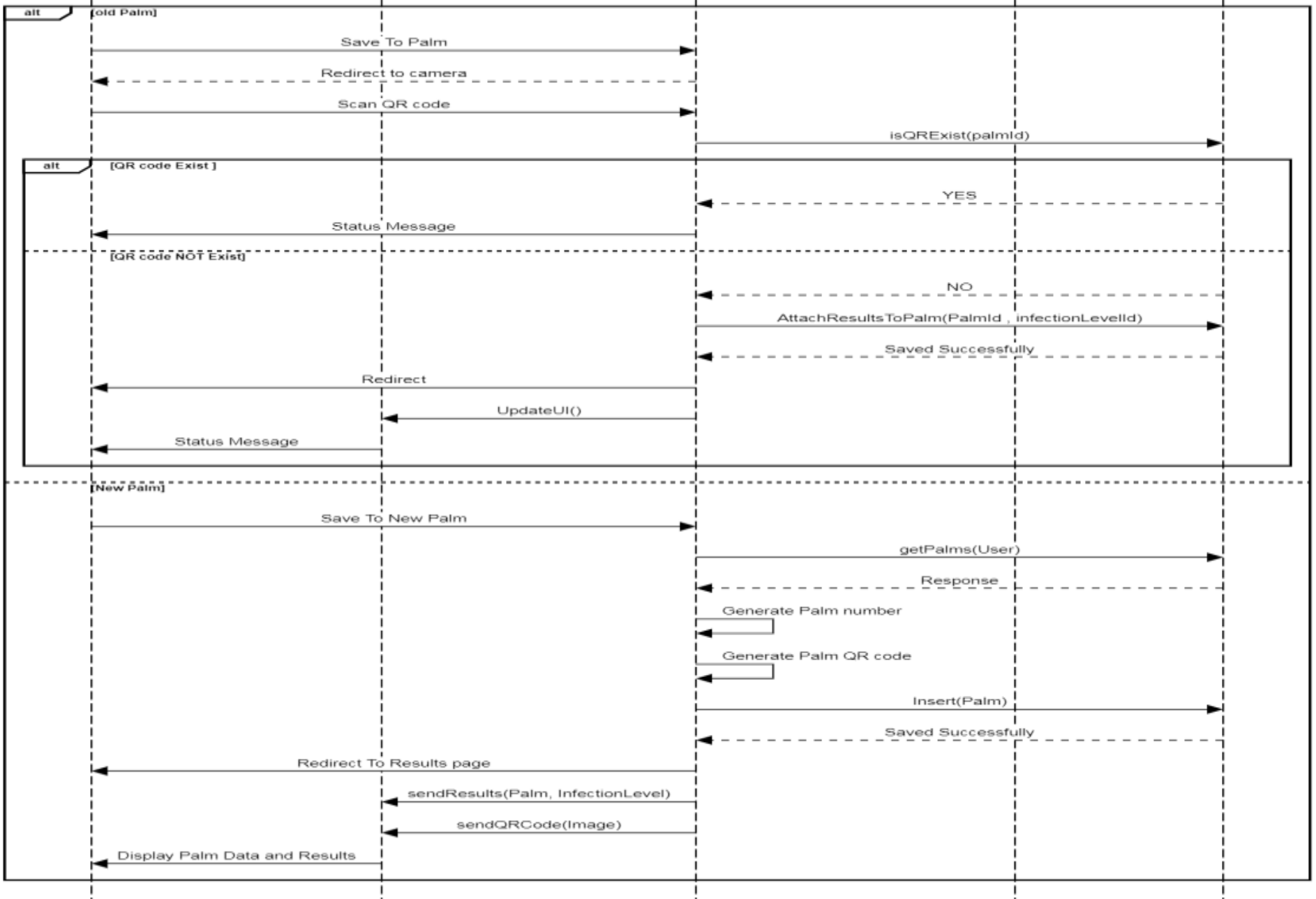
Class Diagram 4/4



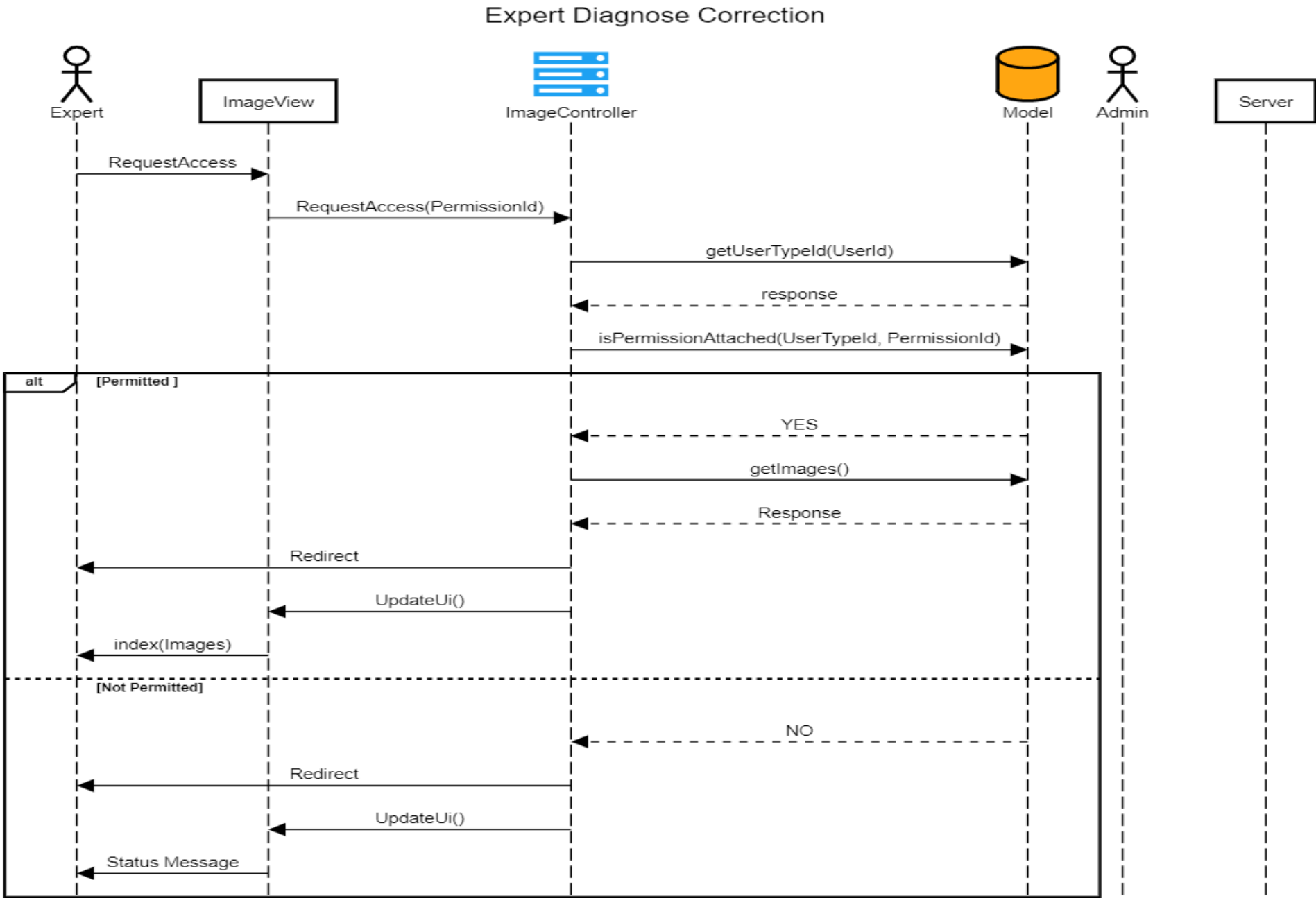
Important Sequence Diagram 1/3



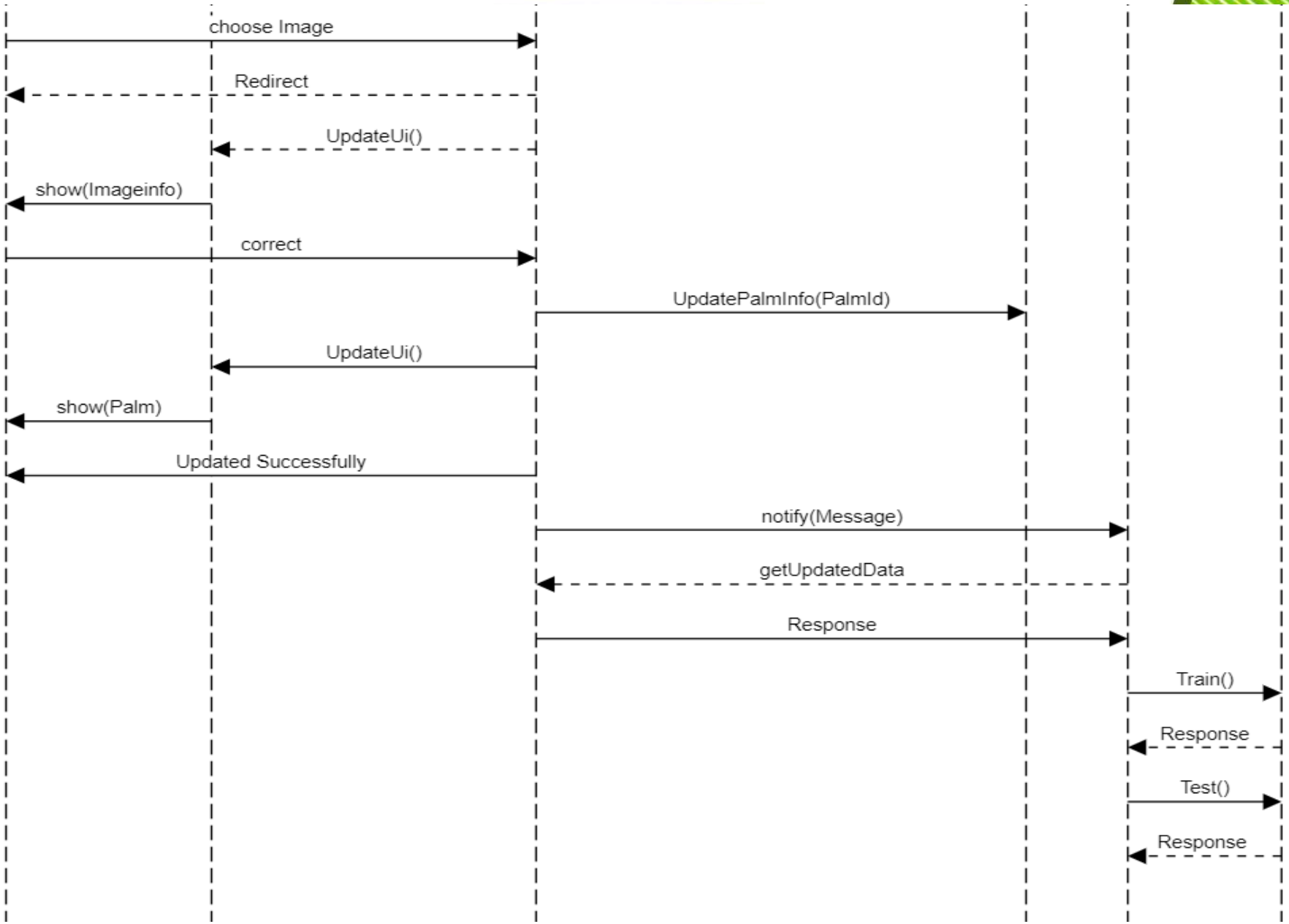
Important Sequence Diagram 1/3



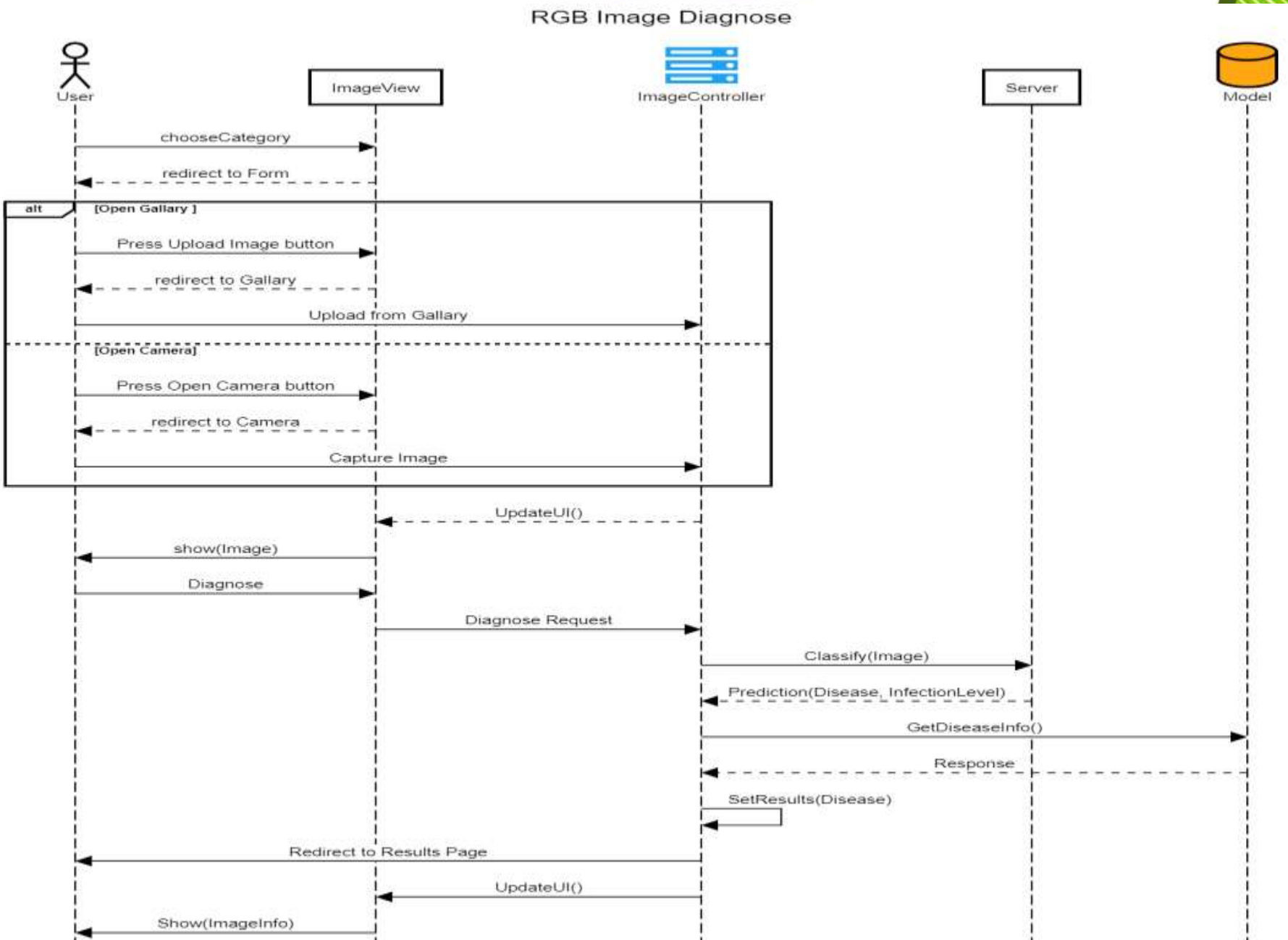
Important Sequence Diagram 2/3



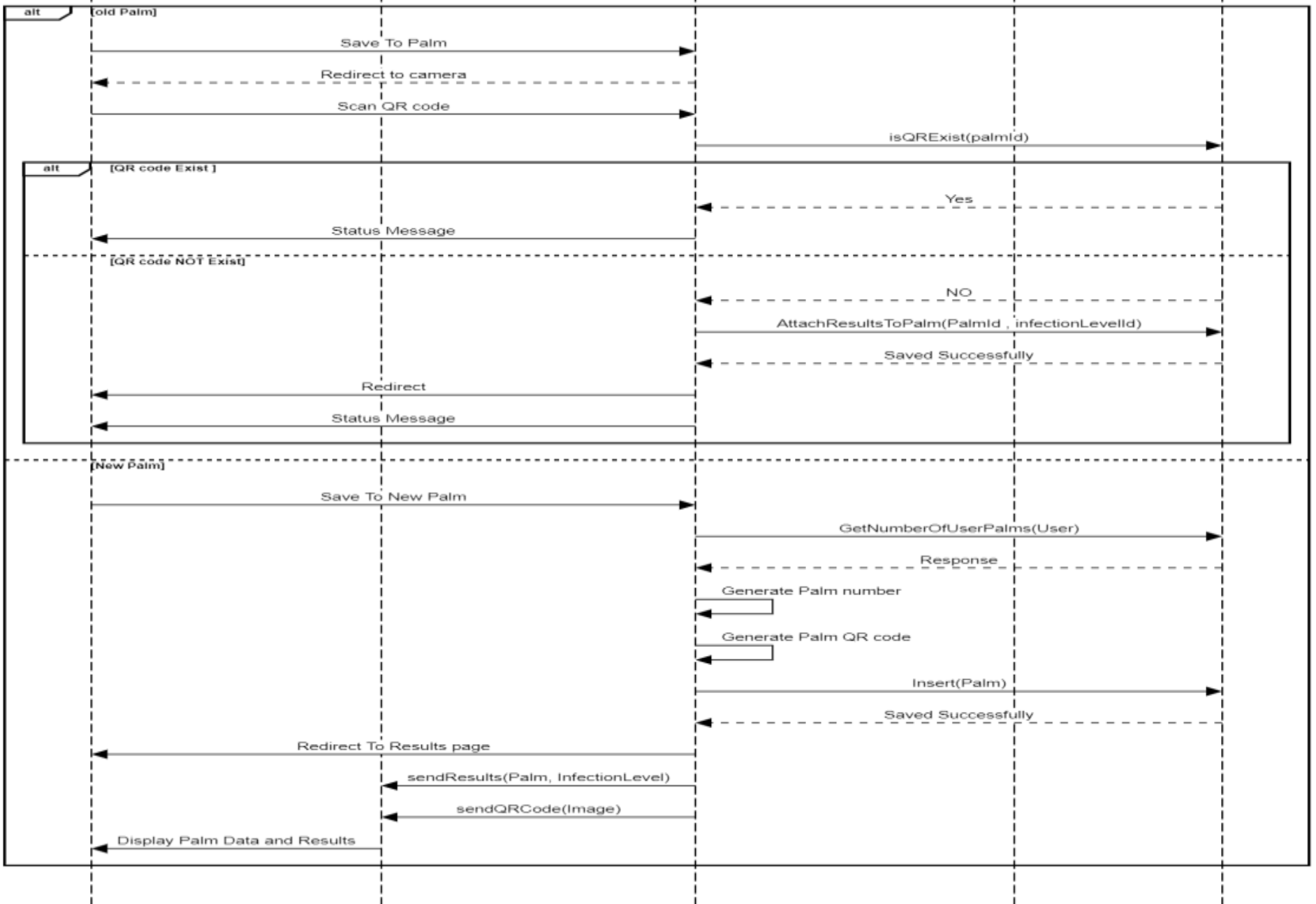
Important Sequence Diagram 2/3



Important Sequence Diagram 3/3



Important Sequence Diagram 3/3



CNN Layers

```
model.summary()
```

```
Model: "sequential_3"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
vgg16 (Model)                (None, 7, 7, 512)         14714688
_________________________________________________________________
flatten_3 (Flatten)          (None, 25088)             0
_________________________________________________________________
dense_5 (Dense)              (None, 256)               6422784
_________________________________________________________________
dropout_3 (Dropout)          (None, 256)               0
_________________________________________________________________
dense_6 (Dense)              (None, 3)                 771
=================================================================
Total params: 21,138,243
Trainable params: 6,423,555
Non-trainable params: 14,714,688
_________________________________________________________________
```

Demo

11:23
Palm care
Choose Your Category
Full Palm
Leaves
Trunk
Base

Results

Image Type	Dataset	F-score
Healthy Palms	5250 Images	98
Leaf Spots	5250 Images	97
Blight spots	5250 Images	95

- Total Accuracy : 96.6 %
- Total Dataset: 10250 Images

DELL EMC

- Have been shortlisted for moving to the next phase in Dell EMC Envision the Future Competition

ICSIE Conference

Paper Title : A Survey on Detection of Red Palm Weevil Inside Palm Trees: Challenges and Applications

Evaluation:					
	Poor	**Fair**	**Good**	**Very Good**	**Outstanding**
Originality	☐	☐	☐	☒	☐
Innovation	☐	☐	☐	☒	☐
technical merit	☐	☐	☐	☒	☐
applicability	☐	☐	☐	☐	☒
Presentation and English	☐	☐	☐	☐	☒
Match to Conference Topic	☐	☐	☐	☐	☒
Recommendation to Editors					
	Strongly Reject	**Reject**	**Marginally Accept**	**Accept**	**Strong Accept**
Recommendation	☐	☐	☐	☒	☐

THANK YOU