

# OSP Stage 2040 – Design for ASAP Paint Tool – T4

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# Activity 2041.

## Design Real Use Case (1/2)

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- ▶ More detail than use case in Activity 2030. Analysis.
- ▶ **Event-Oriented** specification.
- ▶ Specifies Typical events & Exceptional events.
- ▶ Specifies not an exceptional but Alternative!
- ▶ Entire use cases are in Document OSP Stage 2040 – Design by T4

→ **BE READY FOR DESIGN!**

# Activity 2041.

## Design Real Use Case (2/2)

### ▶ Refer Activity 2031 (OSP Stage 2030 – Analysis)

Essential Use case → Real Use case

(Specified by perspective of **Event** from User or System)

| Use Case                      | 1.1 New Image  |
|-------------------------------|--|
| Actor                         | User   |
| Purpose                       | (As in the business use case)  |
| Overview                      | (As in the business use case)  |
| Type                          | Primary and Essential  |
| Cross-References              | R 1.3.1, R 1.3.2, R 1.4  |
| Pre-Requisites                | Use Case : "저장(Save)", "다른 이름으로 저장(Save As)", "종료(Exit)",<br>프로그램의 로딩이 완료되었거나, 이전의 다른 명령이 모두 실행된 상태  |
| Typical Course of Event       | (A) : Actor, (S) : System<br>1. (A): 사용자가 새 파일 메뉴를 선택<br>2. (S): Image 의 saveYN변수가 false인지 확인한다.<br>3. (A): 파일 저장 여부를 선택한다.<br>4. (S): 파일 저장 / 파일 종료<br>5. (S): Image 의 pixel값을 전부 흰색으로 교체한다.<br>6. (S): Image 의 fileName과 fileinfo를 "" 으로 변경한다. |
| Alternative Courses of Events | N/A  |
| Exception Course of Events    | Line 2. 변수가 true일 경우 5번단계로 건너뛴다.<br>Line 6.파일의 생성이 실패하였음을 대화상자(Dialog)를 이용해 사용자에게 알린다.<br>실패 시 발생한 오류의 종류를 로그로 남기고 사용자에게 안내한다.   |

eg. Use Case New File

**Typical events** that may occur  
In normal way.

**Exceptional events** when  
typical events occur in  
abnormal way

# Activity 2042.

## Define Reports, UI and Storyboards (1/2)

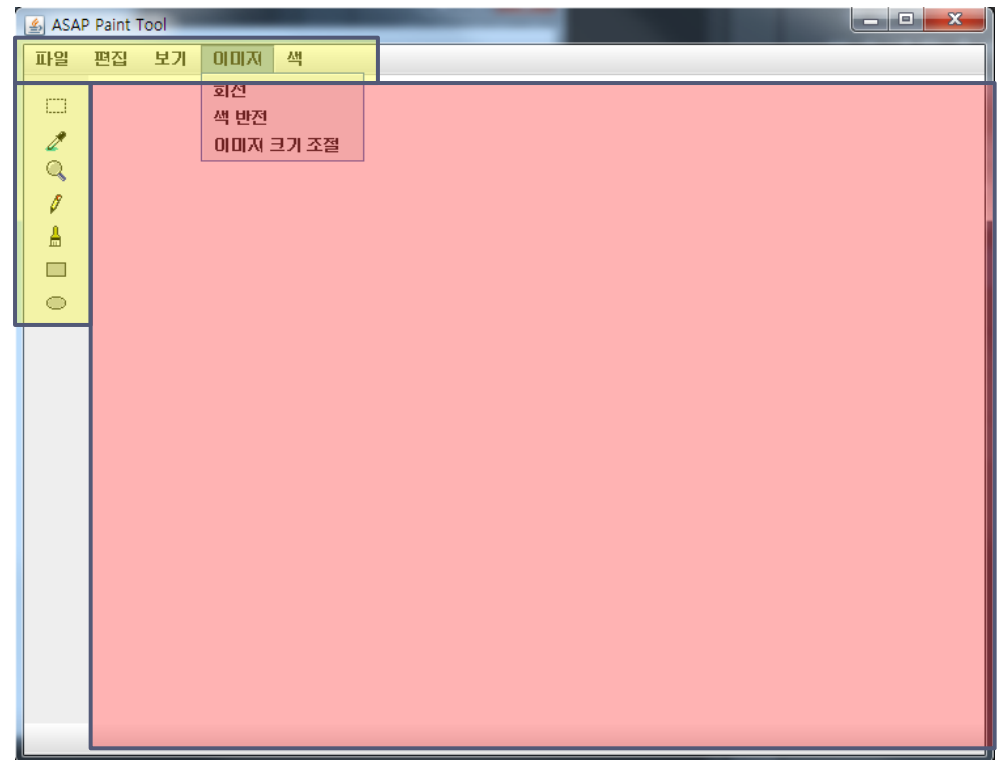
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- ▶ Reports: figure expected software.
- ▶ UI(User Interface): Interface that enables to use the software by users.
- ▶ Storyboard: Specific explanations and typical command or operations with user events or system internal events with figures of UI & Reports. → **Done(Real Use Case)**

# Activity 2042.

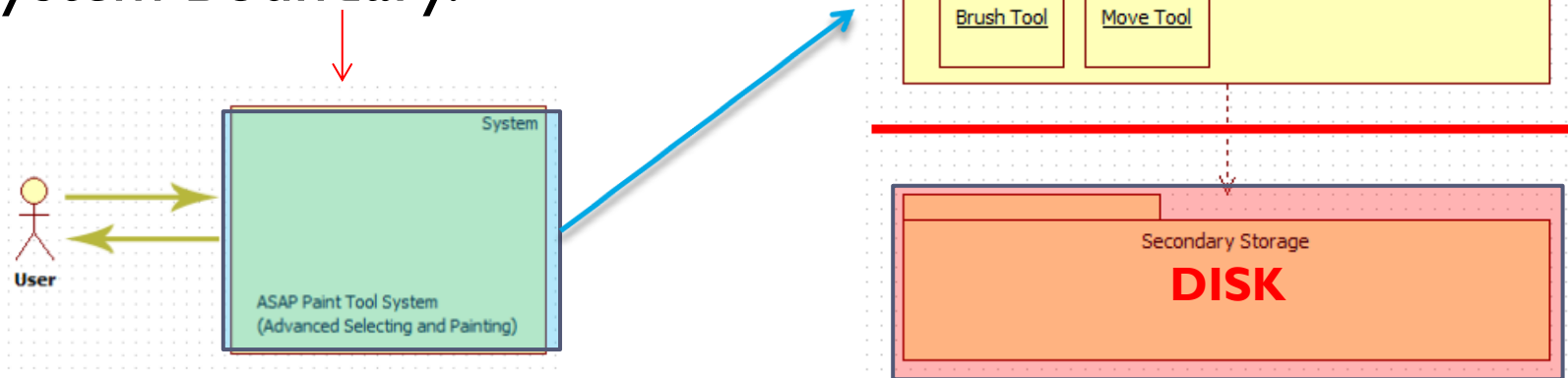
## Define Reports, UI and Storyboards (2/2)

- ▶ Eg. When click IMAGE Menu.
- ▶ Left Panel has 7 buttons that make user draw or edit images.
- ▶ Top Panel has 4 menus.
- ▶ Workspace Panel has default background color with white.



# Activity 2043. Refine System Architecture

- ▶ No database.
- ▶ Interactions between System and Secondary Storage Device(DISK) as file object.
- ▶ File I/O will be processed by FileManager Class
- ▶ Specified from Activity 1006.  
System Boundary.



# Activity 2044.

## Define Interaction Diagram (1 / 4)

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- ▶ Sequence Diagrams between USER and SYSTEM.
- ▶ User intercommunicate with designed classes. Normally, user requests something about Image processing to “Window” class.
- ▶ Every requested classes **will be processed in sequentially with other classes.**
- ▶ Finally, (Normally) Window class gives internal message back to user whether if operation has been processed in normal way or not.
- ▶ In starUML, ***It's going to generate code for these Sequence Diagrams into Java Language.***

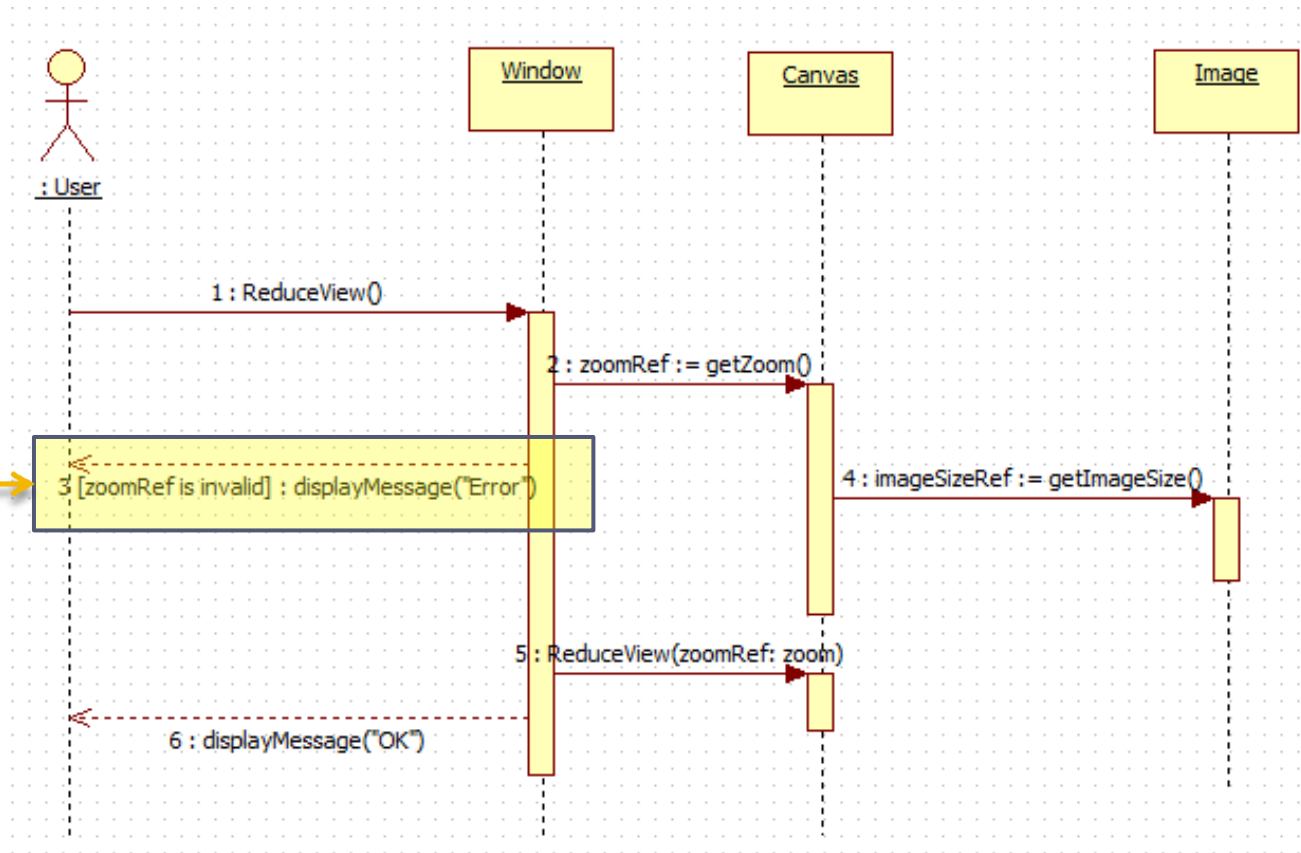


# Activity 2044.

## Define Interaction Diagram (2/4)

### ► Eg. Use Case 7: Reduce

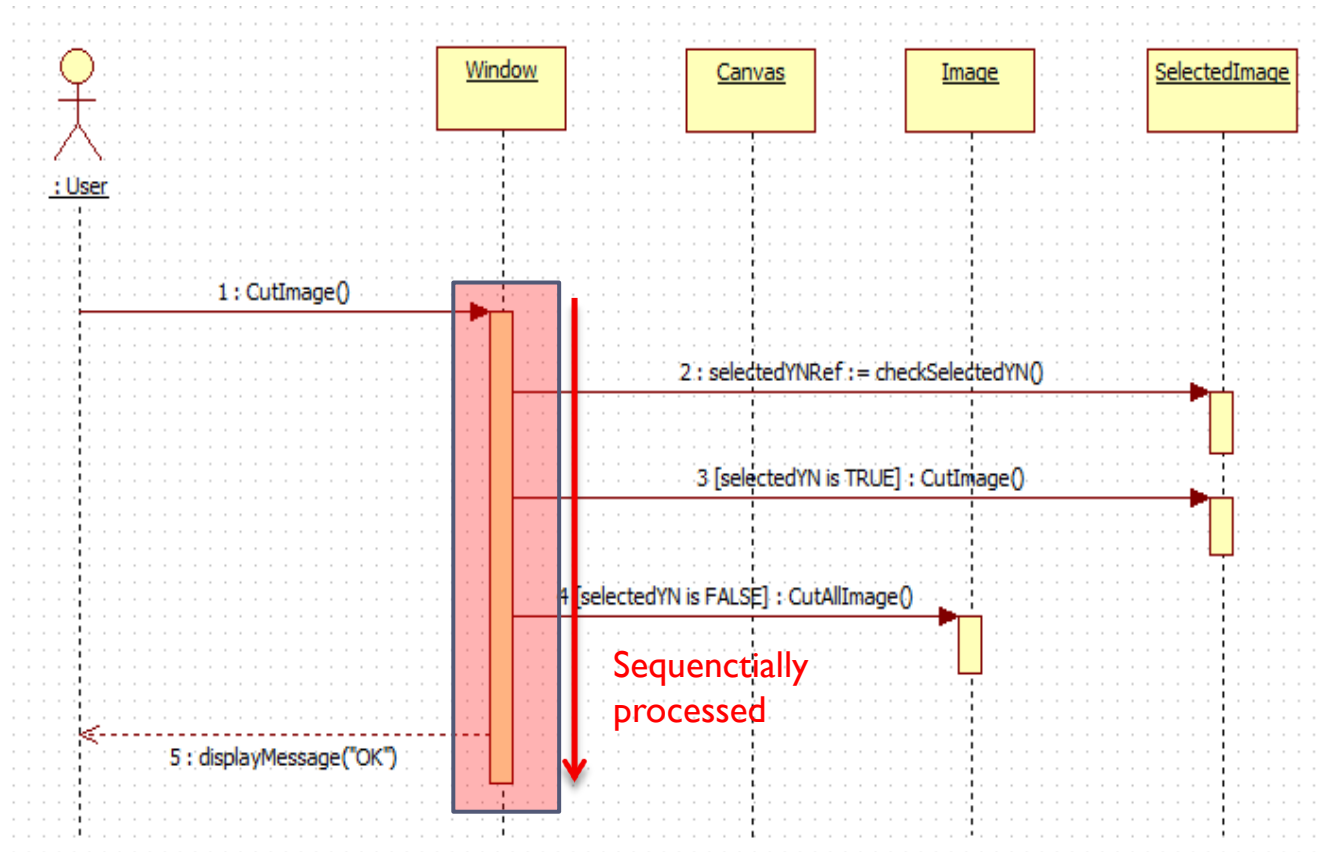
Exceptional  
Events  
from Real  
Use Case  
Activity 2041  
Ref. 4 Slide



# Activity 2044.

## Define Interaction Diagram (3/4)

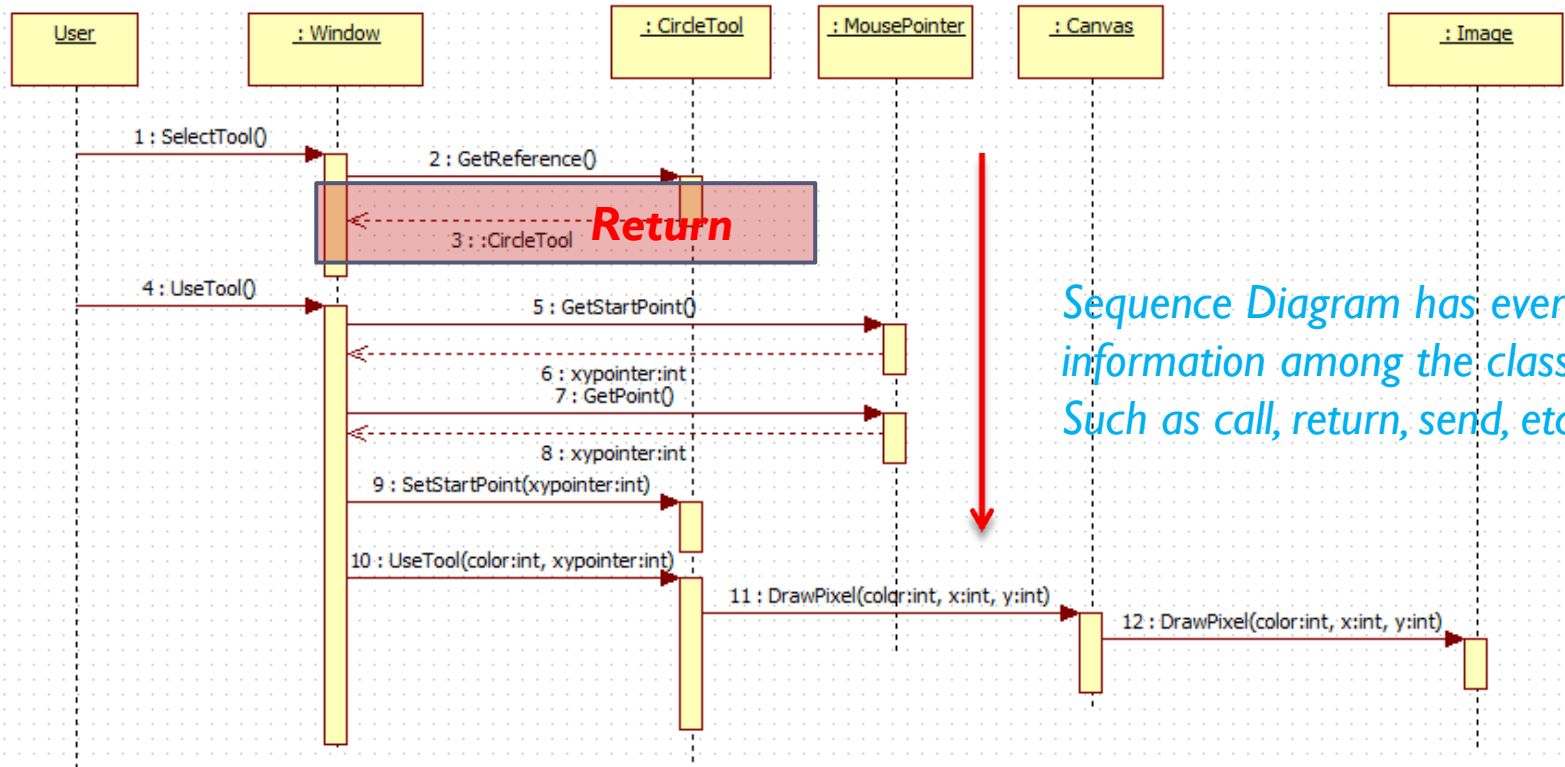
### ► Eg. Use Case 9: Cut



# Activity 2044.

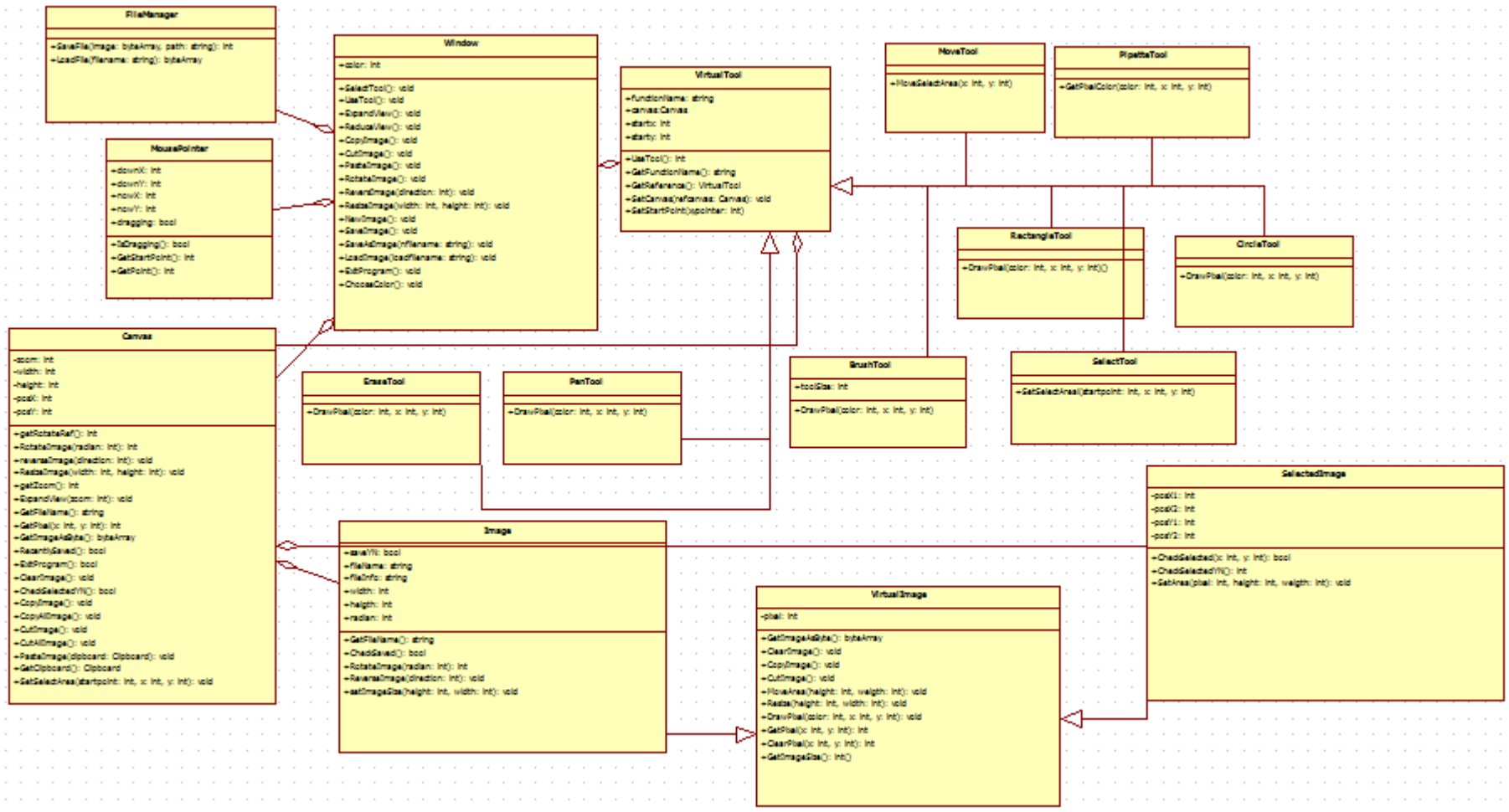
## Define Interaction Diagram (4/4)

### ► Eg. Use Case 23: Draw (Circle)



# Activity 2045.

## Define Design Class Diagram



# Conclusions for OSP Stage 2040

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- ▶ Importance of **“Use Case”**
- ▶ Stage 2041 through 2045 step by step.
- ▶ Specified Sequential Diagram between user and system.  
→ Automatically generated into JAVA code in starUML.
- ▶ Overall Class Diagram from all the previous contents.  
→ Automatically generated too.

**Ready to implement**  
and revise all the previous contents weak.

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# Thank you