Indian Institute of Information Technology, Allahabad
Object Oriented Methodology

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SOFTWARE DRAWING 2D SHAPES & 3D GRAPHICS

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INTRODUCTION –

“World of Shapes” is basically a software, which enables its user to draw 2D shapes such as Square, Circles with the help of buttons made to control the rotation shapes.

Also, 3D Shapes can be drawn with addition of a button to control the rotation in different orientations.

SCOPE –

We describe what features are in the scope of the software and what are not in the scope of the software to be developed.

In Scope –

- *Drawing 2D Shapes*
- *Drawing 3D Shapes*
- *Rotation of 2D and 3D Shapes*

Out of Scope –

- *Animation of Shapes*
- *Rotation by dragging*
- *Custom dimensions*

PROGRAM FUNCTIONS –

Use Case	Description
Actor	User who executes the program
Enter	User enters the program
Enter Name	Allows users to enter their name
Choose Dimensions	Allows users to choose the dimension of the shape
Choose Shape	Allows users to choose the type of shape
Start	Starts the Main program
Stop	Allows the user to exit the program

Rotation Event Listener	Added along with the start and stop for user's convenience
Action Listener	Helps perform rotation of shapes through button clicks
Shape Rotation	Rotates the shape as per the choice of user
Perform Rotation	Performs rotations on the shapes
Display Shape	Displays the rotated shape
Stop Rotation	Stops the rotation of the shape

USER CHARACTERISTICS –

User should be familiar with using Computer Programs and applications built using Java.

PRINCIPAL ACTORS –

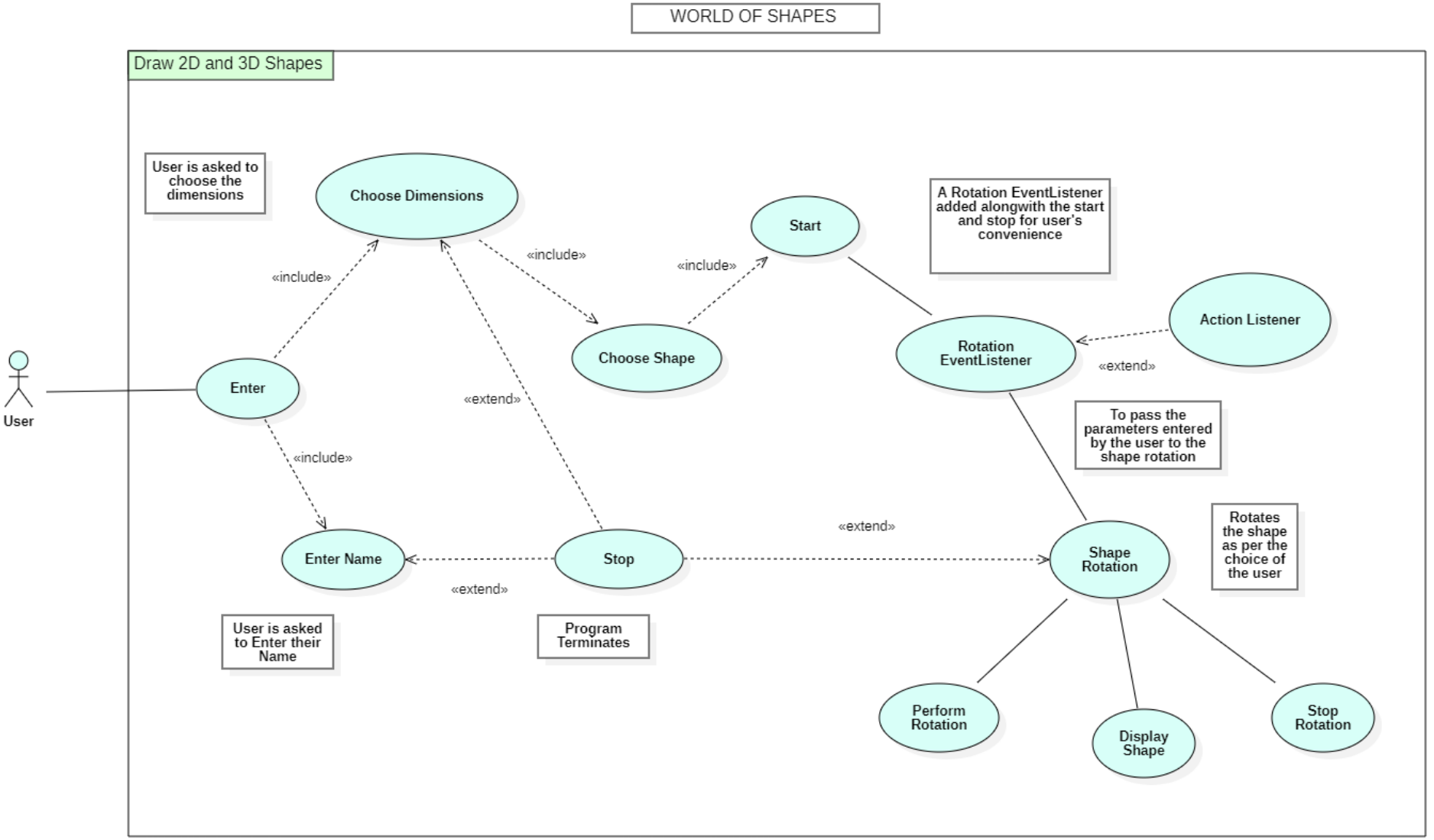
Any user who executes and runs the program.

GENERAL CHARACTERISTICS –

"World of Shapes" is a single user application, every user must have this application installed on their personal computers.

ASSUMPTIONS AND DEPENDENCIES –

- User must have Java JDK installed on their device
- User must have installed appropriate JAR files required for functioning of the program


WORLD OF SHAPES
Draw 2D and 3D Shapes
User
Enter
User is asked to choose the dimensions
Choose Dimensions
«include»
«include»
Choose Shape
«include»
Start
A Rotation EventListener added alongwith the start and stop for user's convenience
Action Listener
Rotation EventListener
«extend»
To pass the parameters entered by the user to the shape rotation
«include»
«extend»
Enter Name
User is asked to Enter their Name
Stop
Program Terminates
«extend»
«extend»
Shape Rotation
Rotates the shape as per the choice of the user
Perform Rotation
Display Shape
Stop Rotation

FUNCTIONAL REQUIREMENTS –

USE CASE – 1

NAME – Enter

SUMMARY – User enters the Program

MAIN SUCCESS SCENARIO – User clicks the ‘OK’ button

POST – CONDITION – NIL

USE CASE – 2

NAME – Enter Name

SUMMARY – Allows user to enter their name

MAIN SUCCESS SCENARIO – User enters an acceptable name

EXTENSION – Invalid name. Program terminates

POST – CONDITION – User can now select the dimensions of the shape

USE CASE – 3

NAME – Choose Dimensions

SUMMARY – Allows user to choose the dimensions of the shape

PRE – CONDITIONS – User entered an acceptable name

MAIN SUCCESS SCENARIO – User selects at least one dimension

EXTENSION – No selection. Program terminates

POST – CONDITION – User can now choose the shape of the chosen dimension

USE CASE – 4

NAME – Choose Shape

SUMMARY – Allows user to choose the type of shape

PRE – CONDITIONS – User must have selected at least one dimension

MAIN SUCCESS SCENARIO – User chooses the desired shape

USE CASE – 5

NAME – Start

SUMMARY – Starts the Main program

PRE – CONDITIONS – User selected all the valid options previously

MAIN SUCCESS SCENARIO – User can initiate the rotation procedure

POST – CONDITION – User can now perform rotation on the shapes

USE CASE – 6

NAME – Stop

SUMMARY – Allows user to exit the program

MAIN SUCCESS SCENARIO – Program successfully terminates

USE CASE – 7

NAME – Rotation Event Listener

SUMMARY – Added along with the start and stop for user's convenience

PRE – CONDITIONS – User chooses to rotate the shape

MAIN SUCCESS SCENARIO – User selects one of the available options

EXTENSION – Action Listener

POST – CONDITION – The chosen shape can be rotated

USE CASE – 8

NAME – Action Listener

SUMMARY – Helps perform rotation of shapes through button clicks

PRE – CONDITIONS – User invokes the rotation event listener

MAIN SUCCESS SCENARIO – The required system routine is invoked.

USE CASE – 9

NAME – Shape rotation

SUMMARY – Rotates the shape as per the choice of user

PRE – CONDITIONS – User has chosen to rotate the shape

MAIN SUCCESS SCENARIO – The Shape rotates.

EXTENSION – User exits. Program terminates

POST – CONDITION – User can rotate shape either clockwise or anticlockwise.

USE CASE – 10

NAME – Perform rotation

SUMMARY – Performs rotations on the shapes

PRE – CONDITIONS – One of the rotation buttons is pressed.

MAIN SUCCESS SCENARIO – The shape is rotated.

POST – CONDITION – NIL

USE CASE – 11

NAME – Display Shape

SUMMARY – Displays the rotated shape.

MAIN SUCCESS SCENARIO – The shape is displayed successfully.

POST – CONDITION – User can further rotate the shape now.

USE CASE – 12

NAME – Stop Rotation

SUMMARY – Stops the rotation of the shape

PRE – CONDITIONS – The shape is rotating.

MAIN SUCCESS SCENARIO – Shape stops rotating.