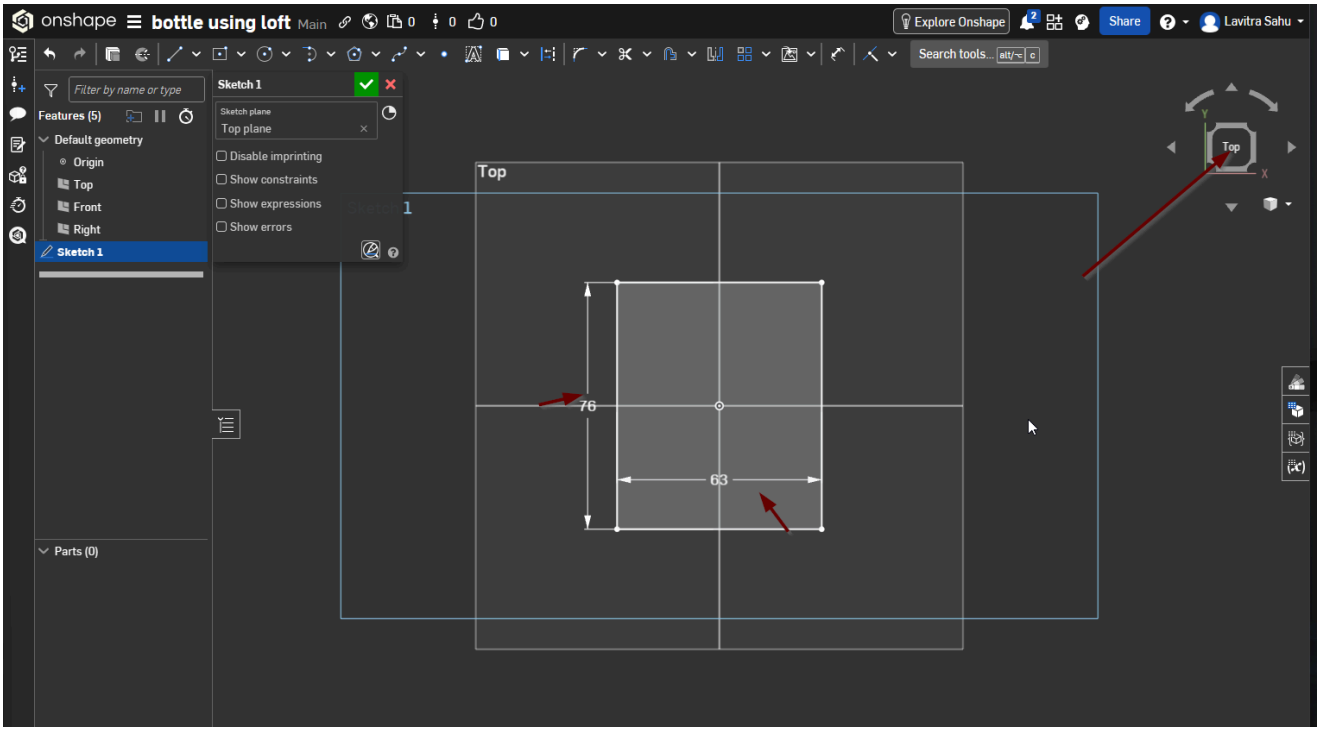
Advanced Onshape Modeling using Sketch, Offset Planes, Loft, Extrude, Shell, and Thread (Bottle)

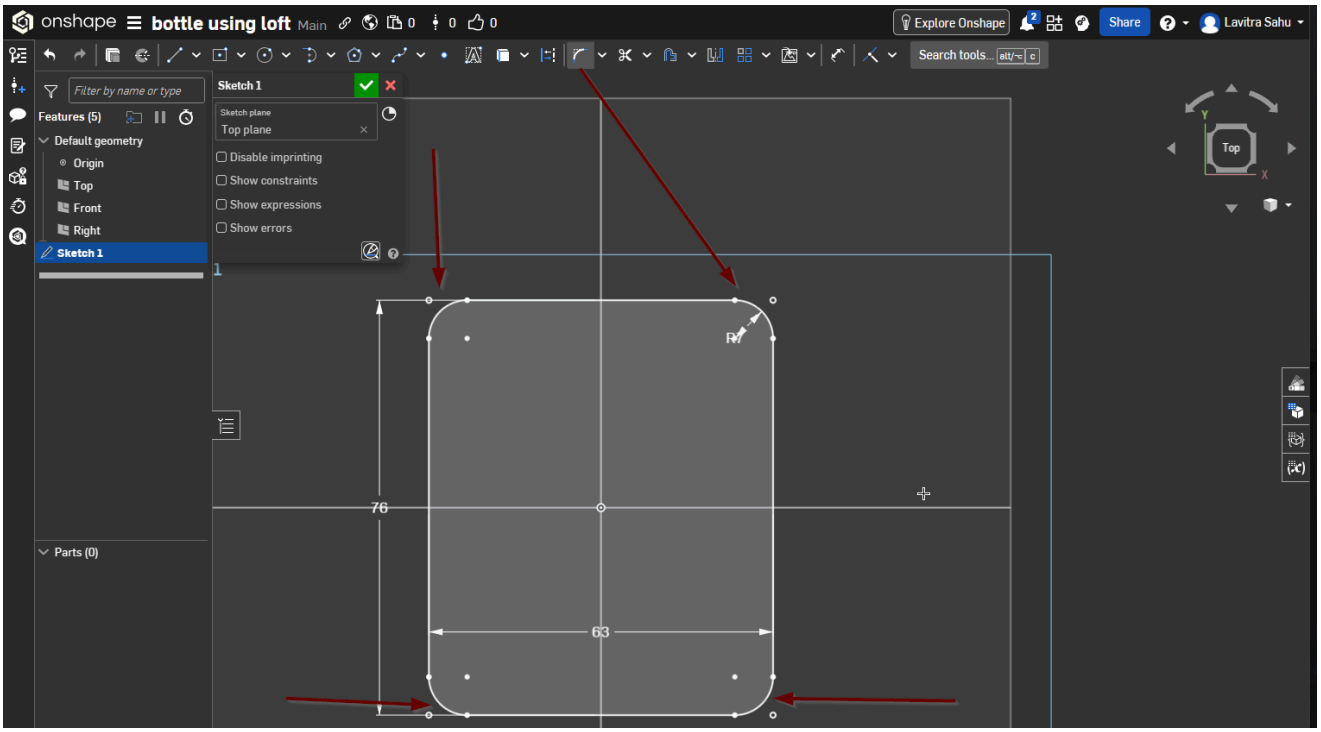
In this section, we will design a complex shape using **multiple sketches, offset planes, lofts, shell, and threads** in Onshape.

Step 1: Create Base Rectangle Sketch



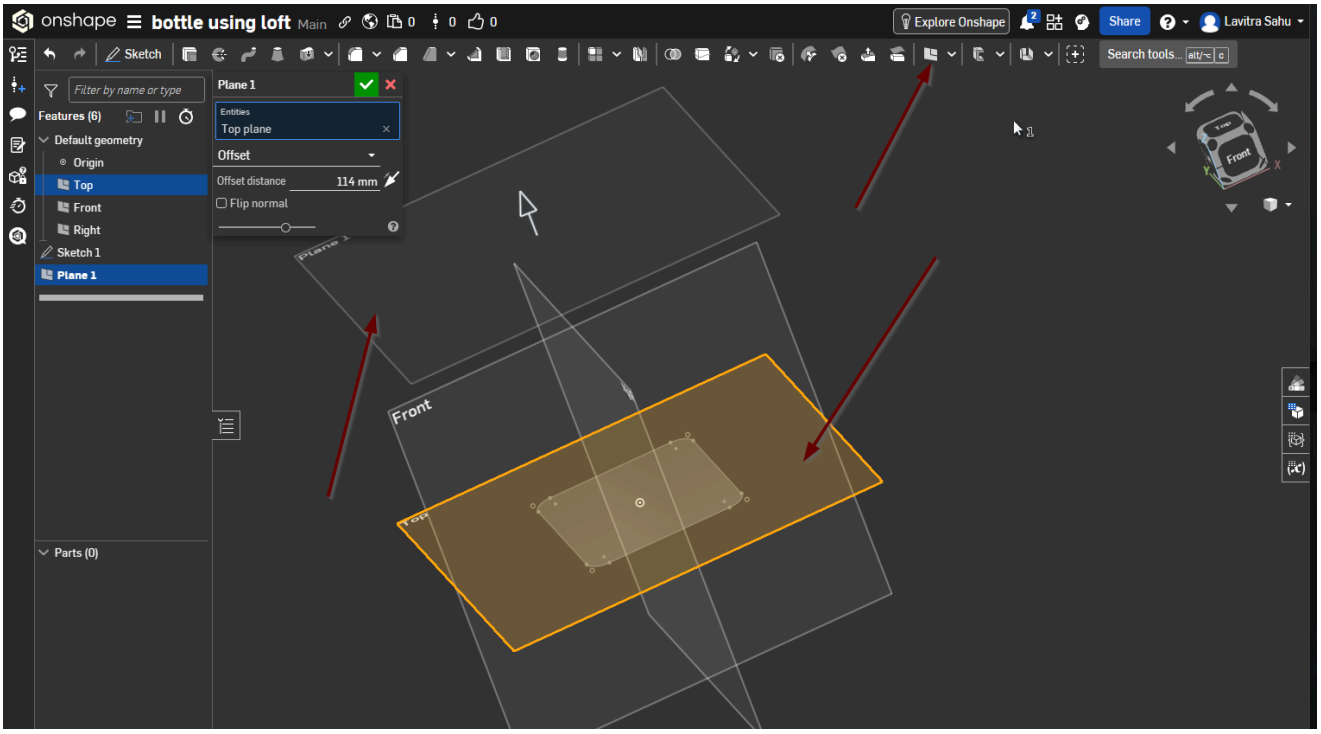
- Create a **Sketch on the Top Plane**
- Draw a **Center Rectangle**
  - Length: **76 mm**
  - Width: **63 mm**

Step 2: Fillet the Rectangle Corners



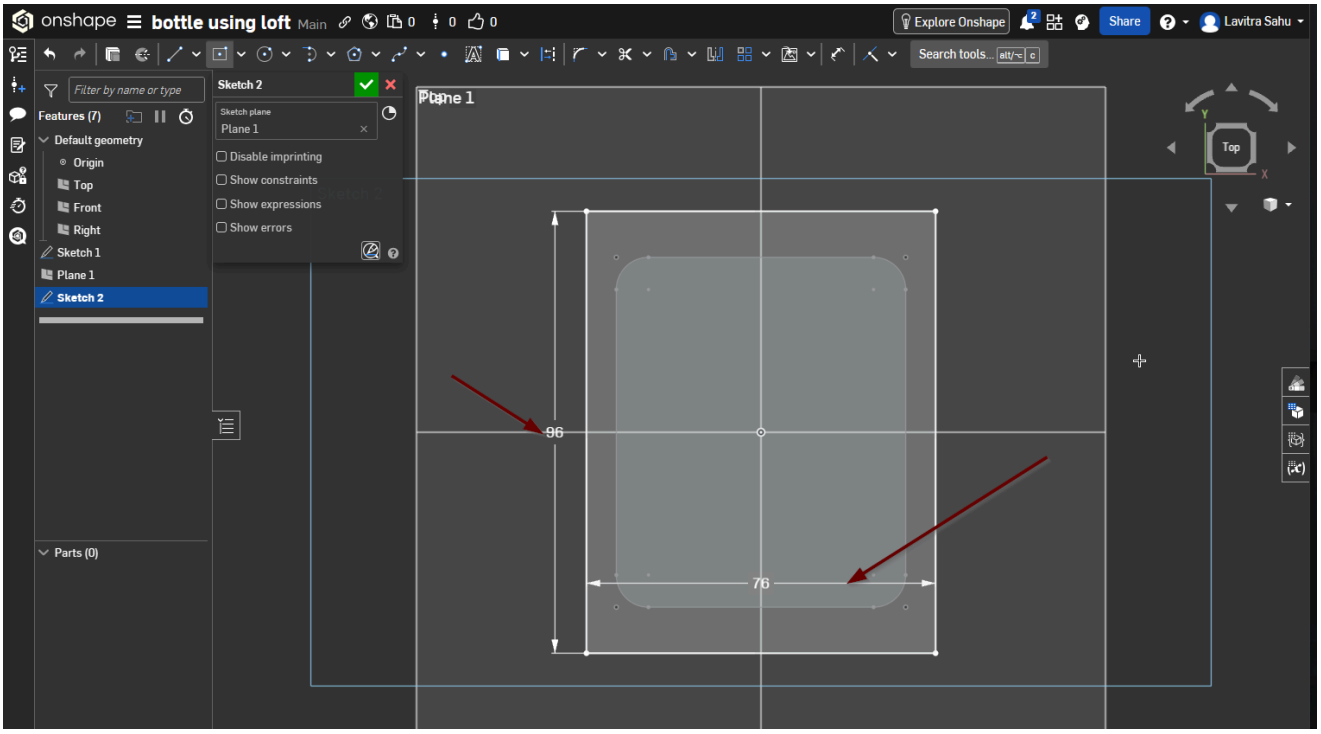
- Select **Sketch Fillet**
- Apply **7 mm radius** fillet on **all four corners**

Step 3: Create First Offset Plane



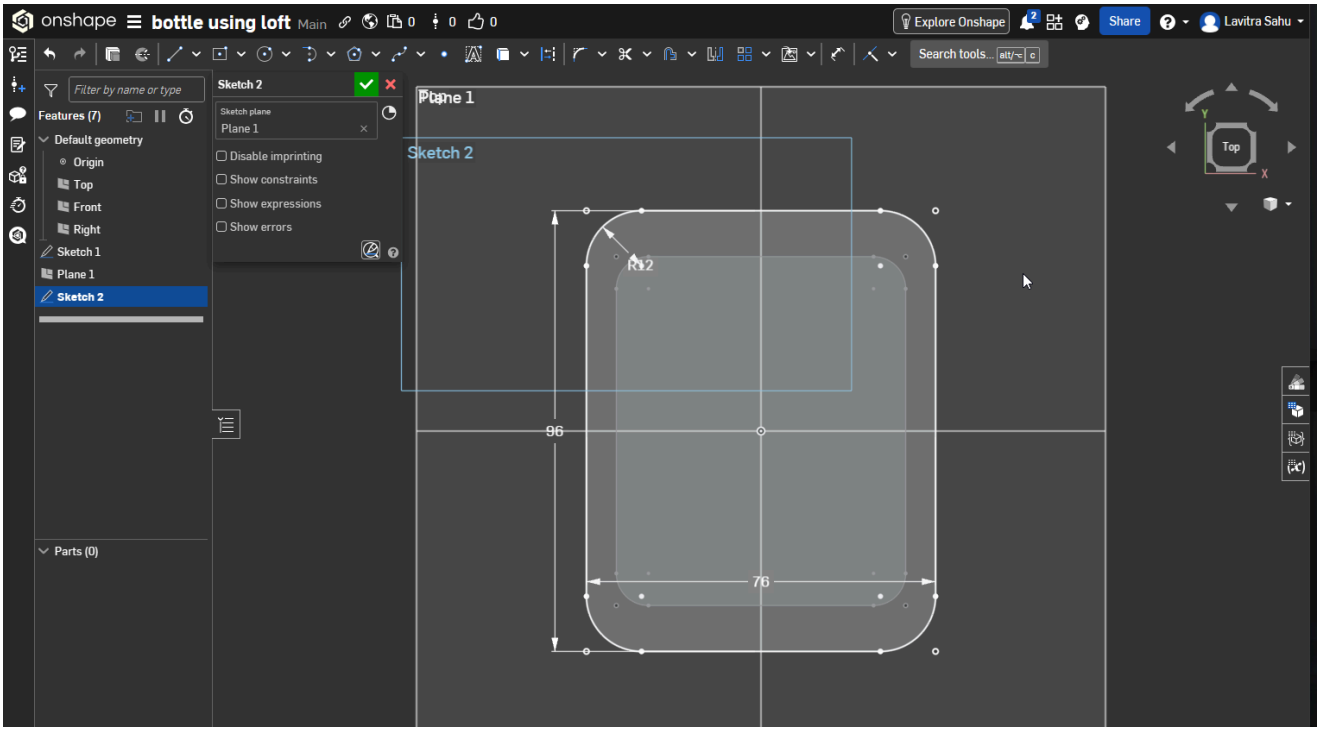
- Select **Plane**
- Choose the **Top Plane**
- Offset it by **114 mm**
- A new offset plane is created

Step 4: Sketch on Offset Plane



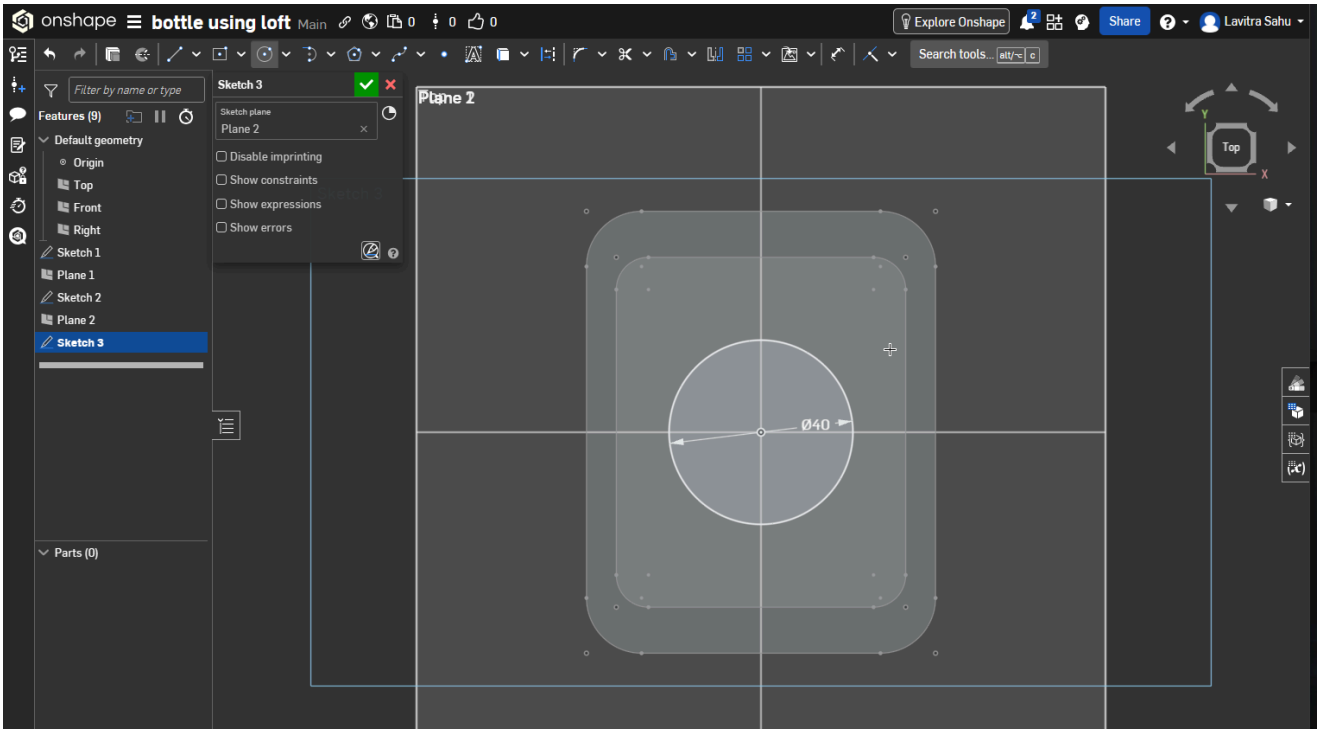
- Create a sketch on the new plane
- Draw a **Center Rectangle**
  - Length: **96 mm**
  - Width: **76 mm**

Step 5: Fillet Second Rectangle



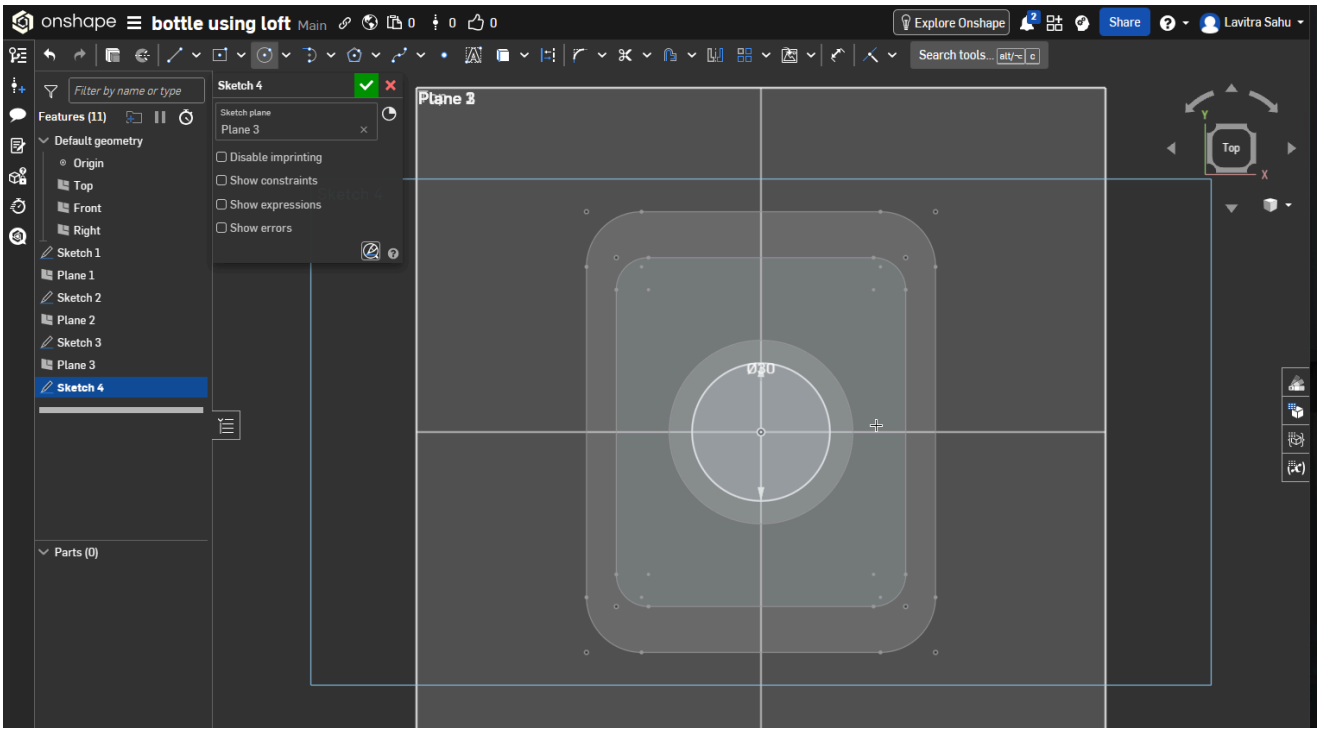
- Apply **12 mm fillet** on all corners of this rectangle

Step 6: Create Second Offset Plane and Circle



- Create another offset plane **38 mm above**
- Draw a **circle of 40 mm diameter**

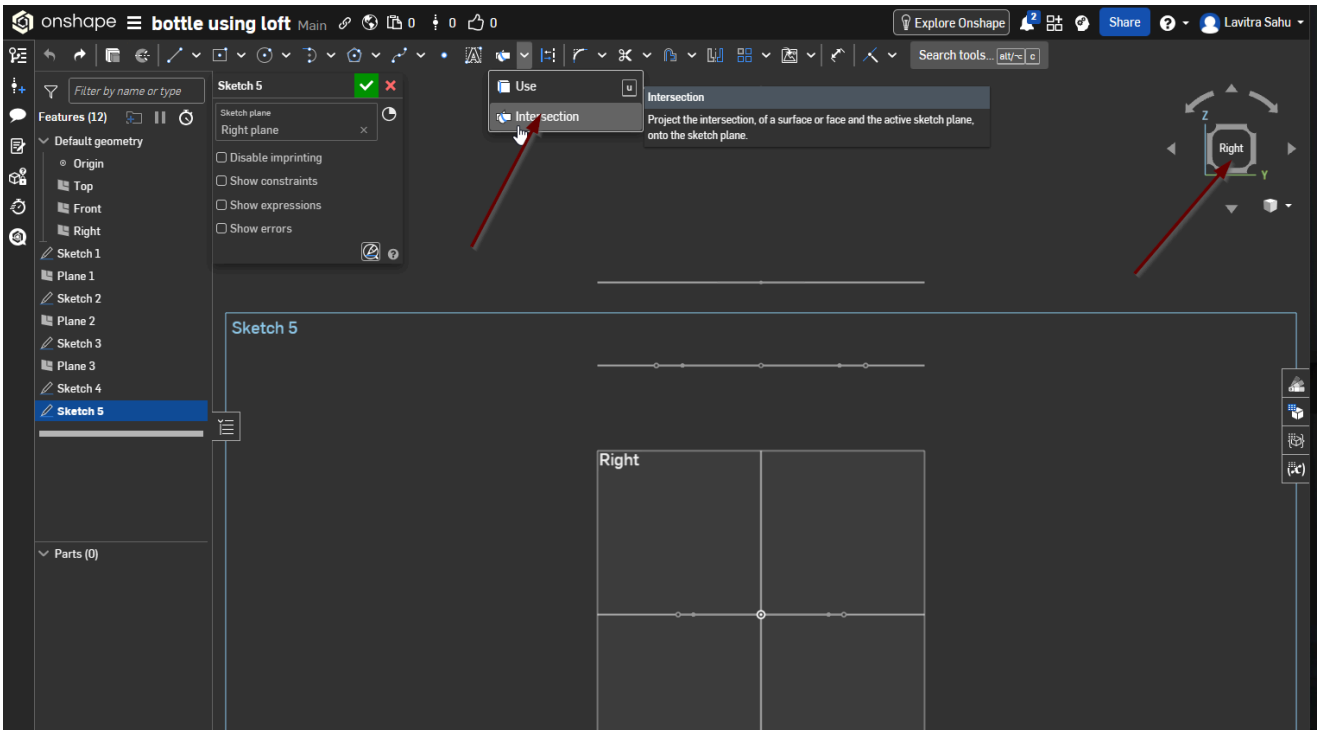
Step 7: Create Third Offset Plane and Circle



- Create another offset plane **89 mm above**
- Draw a **circle of 30 mm diameter**

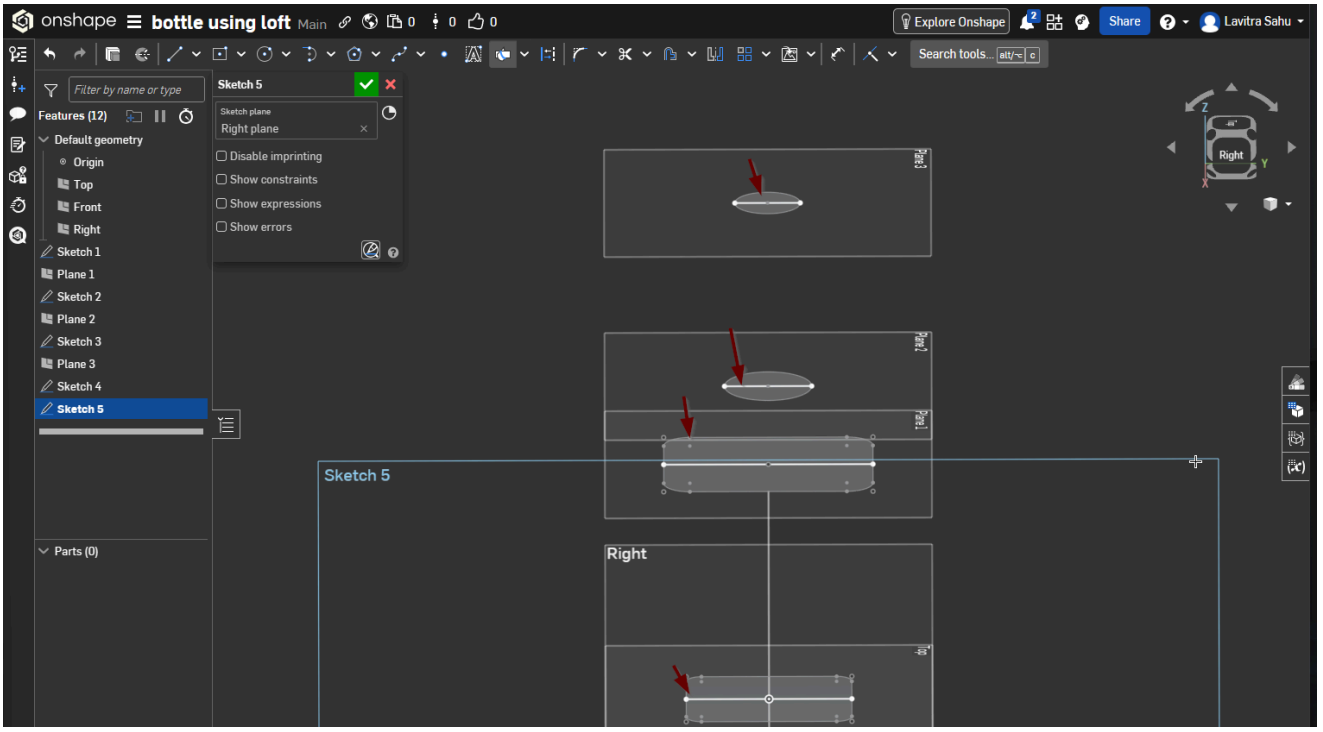
Loft Profile Preparation

Step 8: Sketch on Right Plane



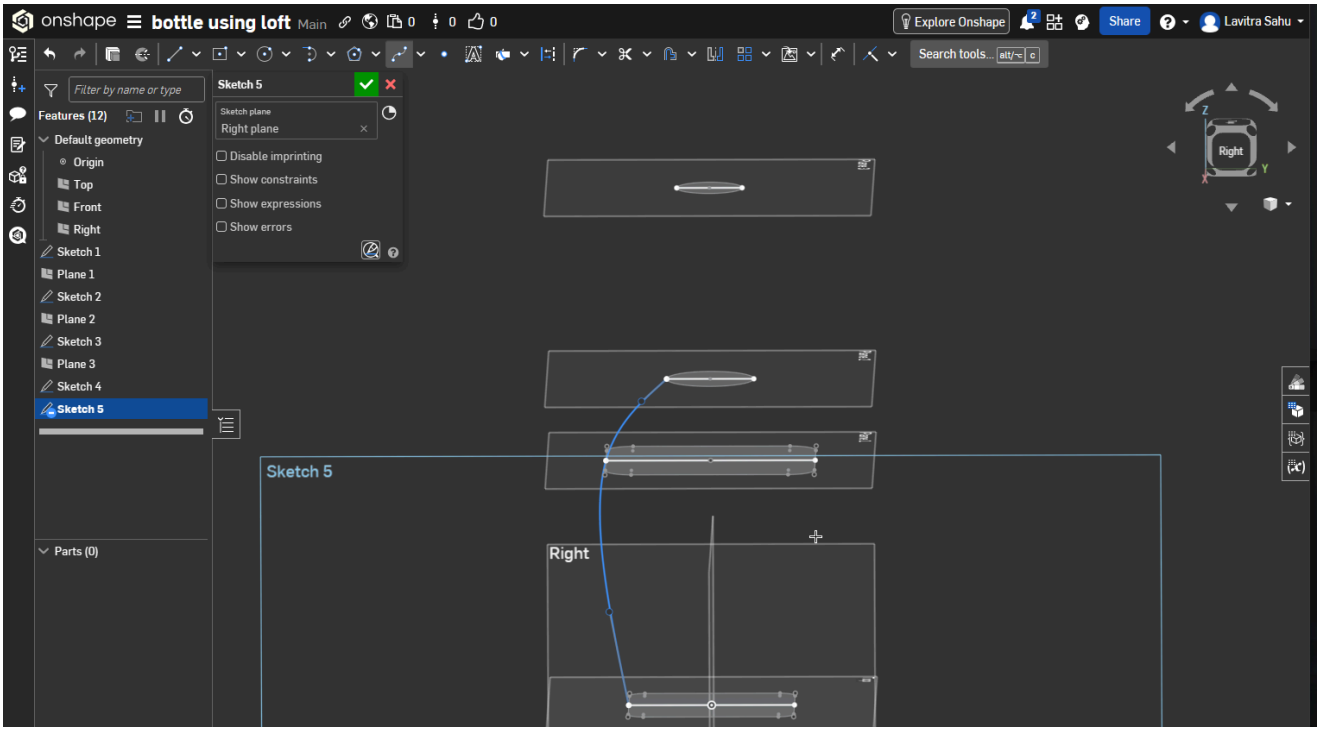
- Select the **Right Plane**
- Create a new sketch
- Use the **Intersection** tool

Step 9: Project Intersections



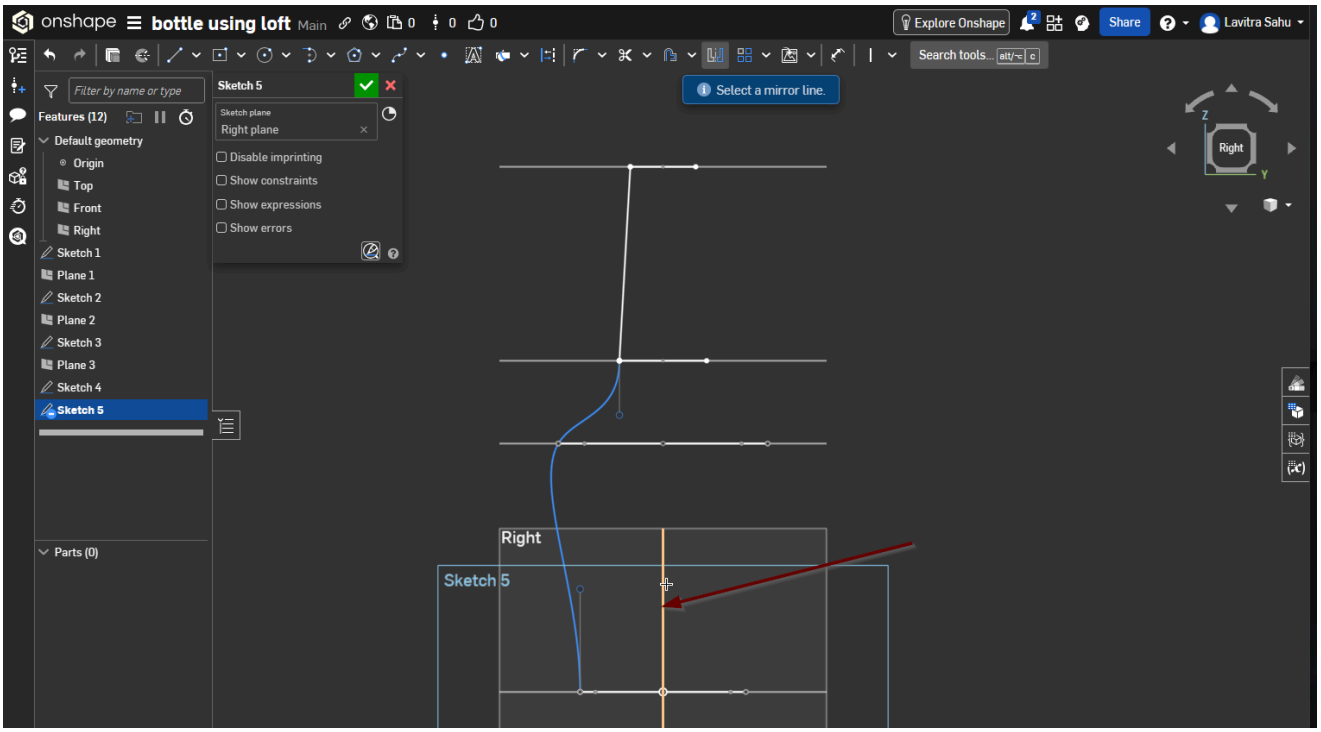
- Select all **rectangle and circle sketch edges**
- Project their intersections onto this sketch

Step 10: Draw Guide Curve

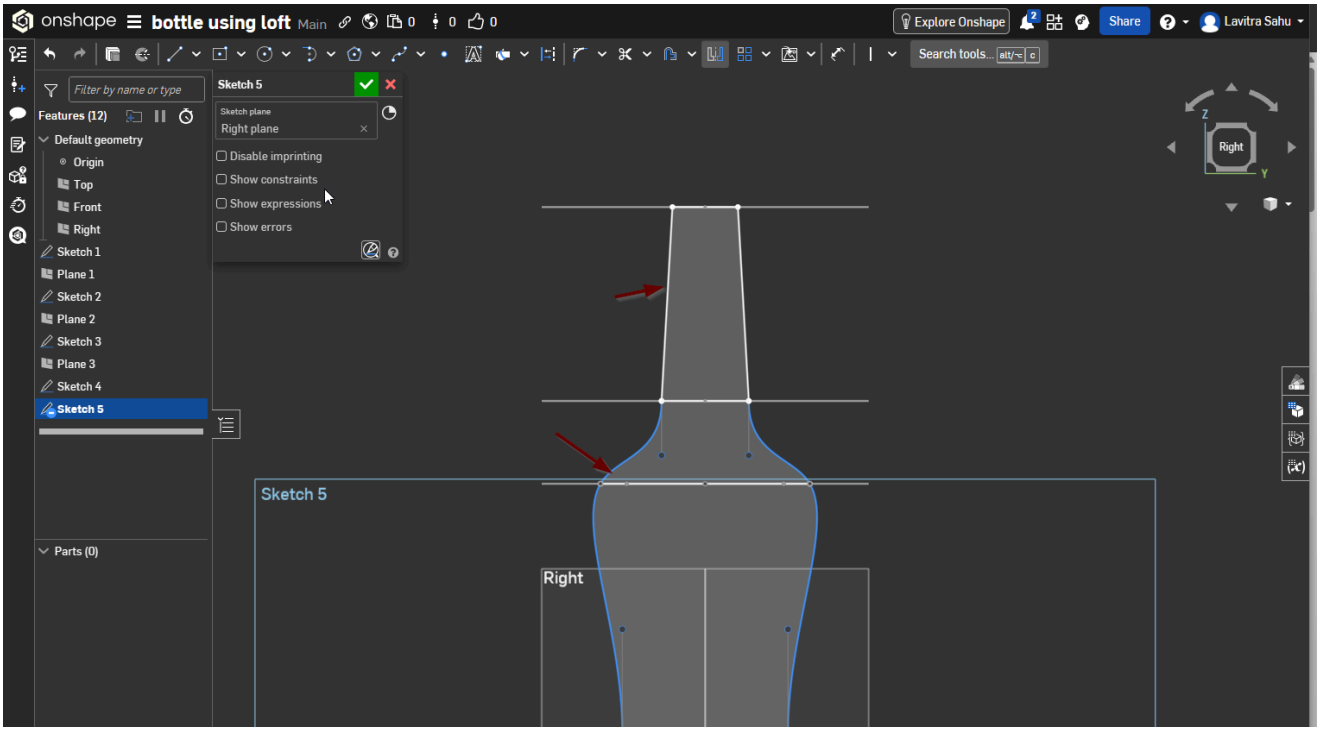


- Draw a **Spline** and a **Line**
- Start from the bottom projected point and extend upward

Step 11: Mirror the Guide Curve



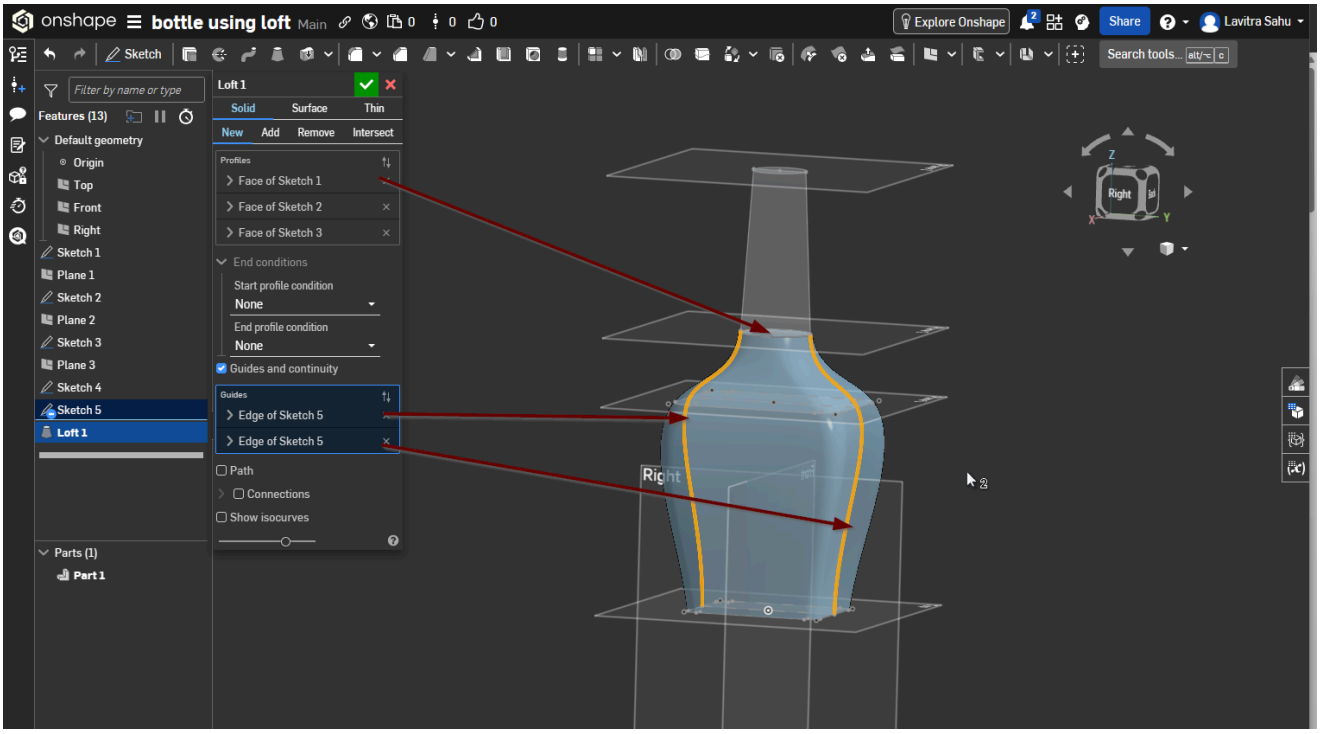
- Select the **Mirror tool**
- Choose the central axis



- Select the spline and line
- Mirror them to the opposite side

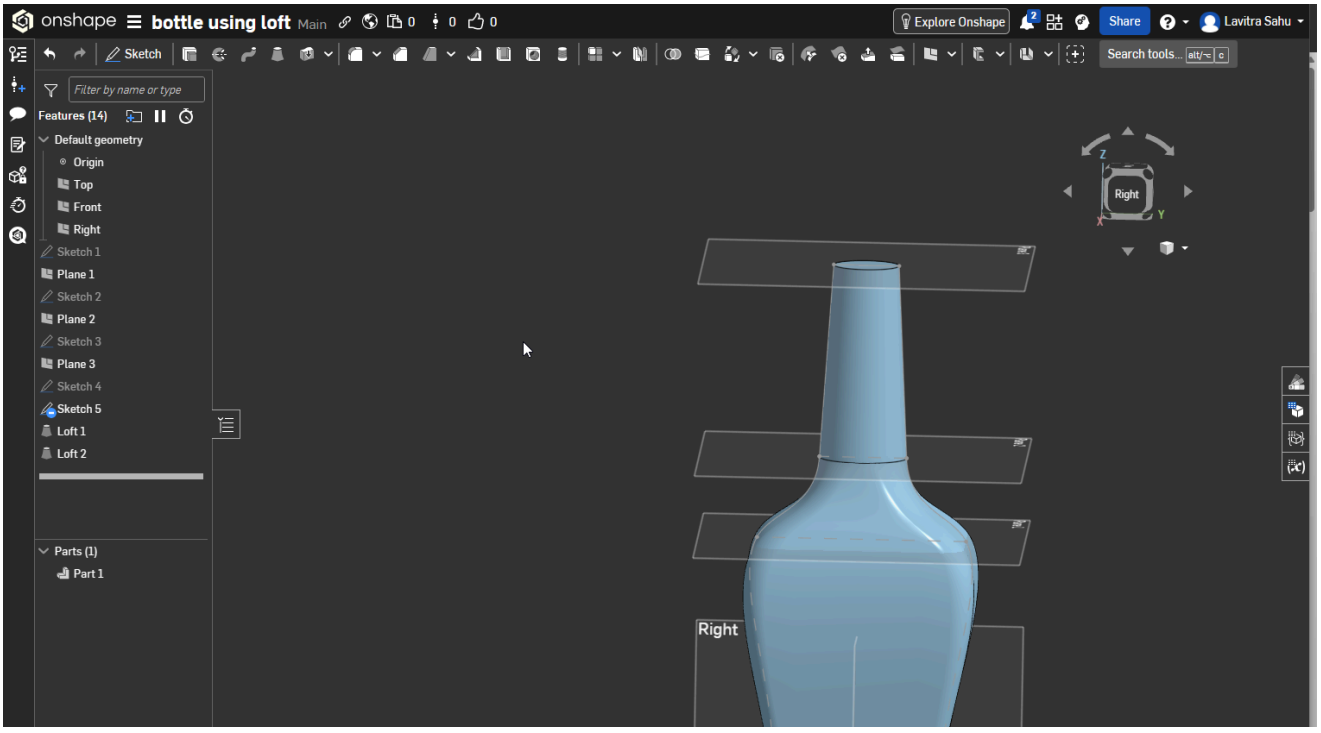
Loft Creation

Step 12: Create Loft



- Select **all sketch faces**
- Select the **projected guide curves**
- Create a **Loft** across the three profiles

Step 13: Add Additional Loft

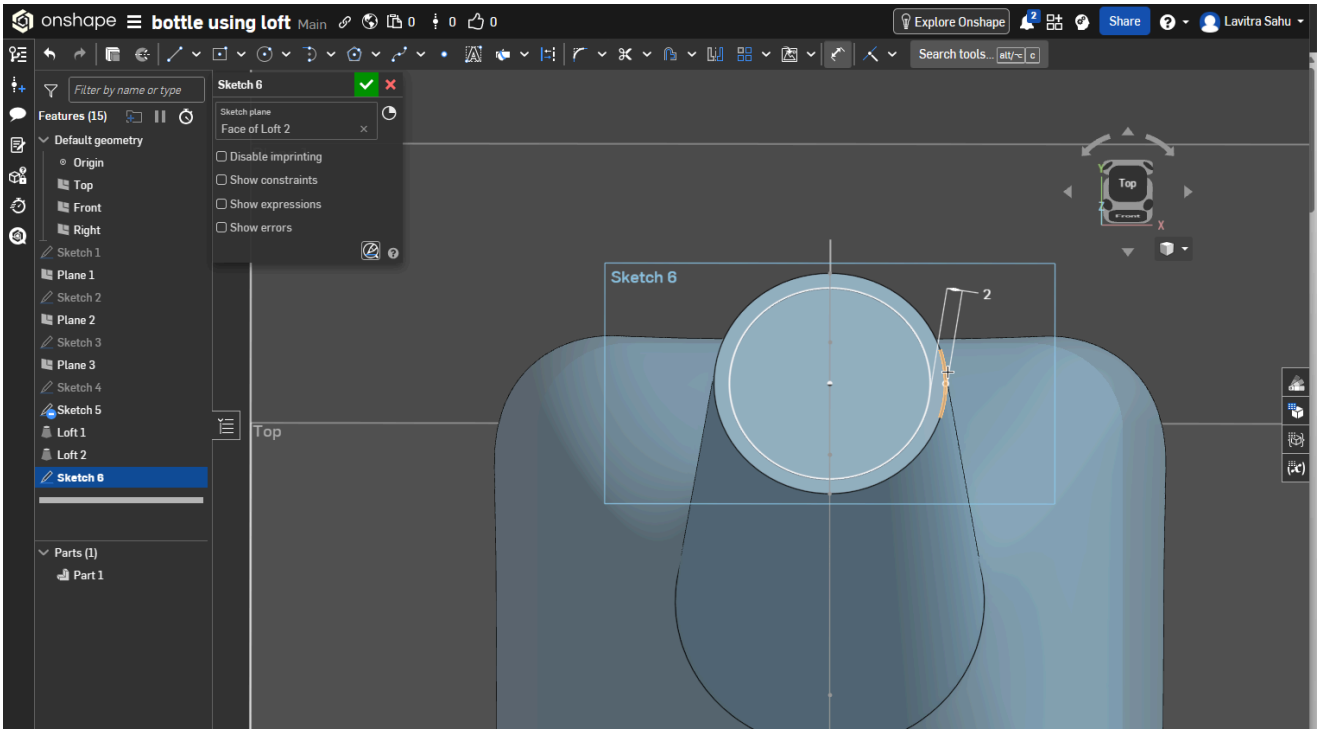


- Add one more **Loft** above the existing geometry to extend the shape

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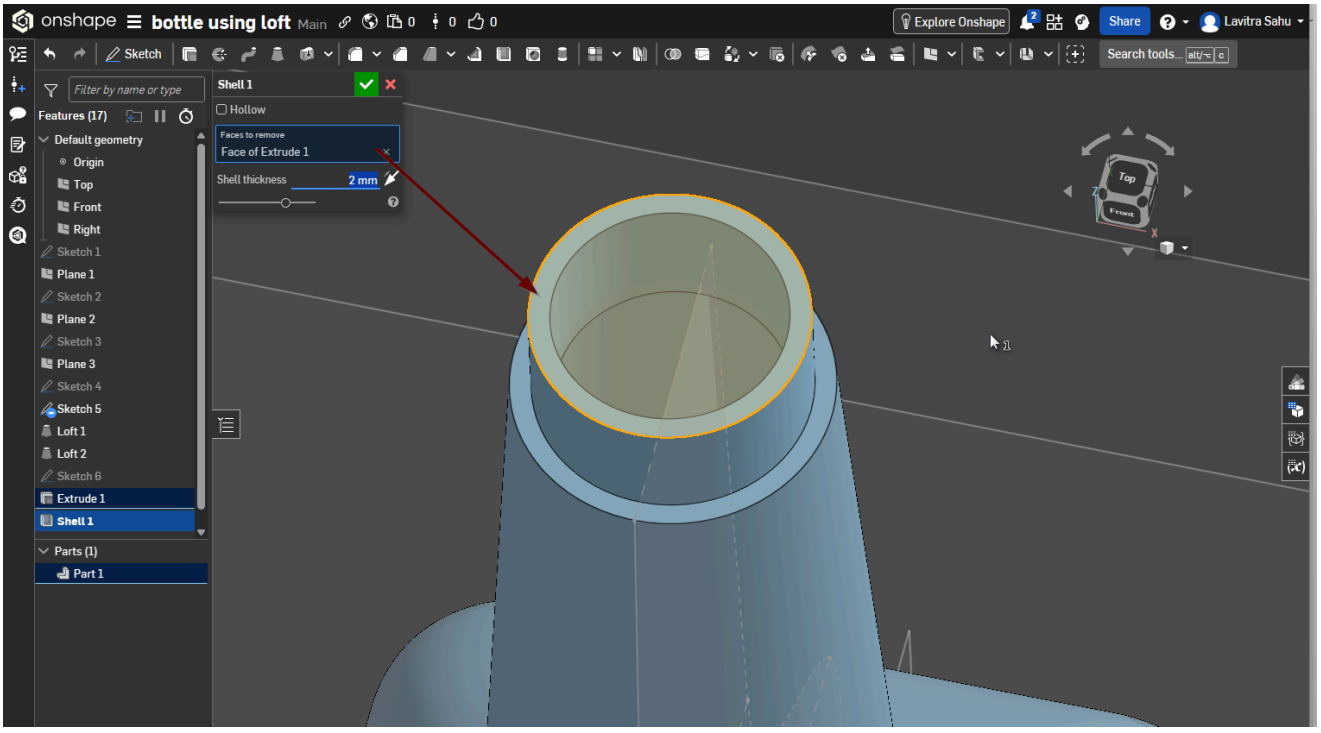
Final Features

Step 14: Extrude Bottle Neck



- Create a sketch on the **bottle neck**
- Draw a **circle**
- **Extrude** it by **12 mm**

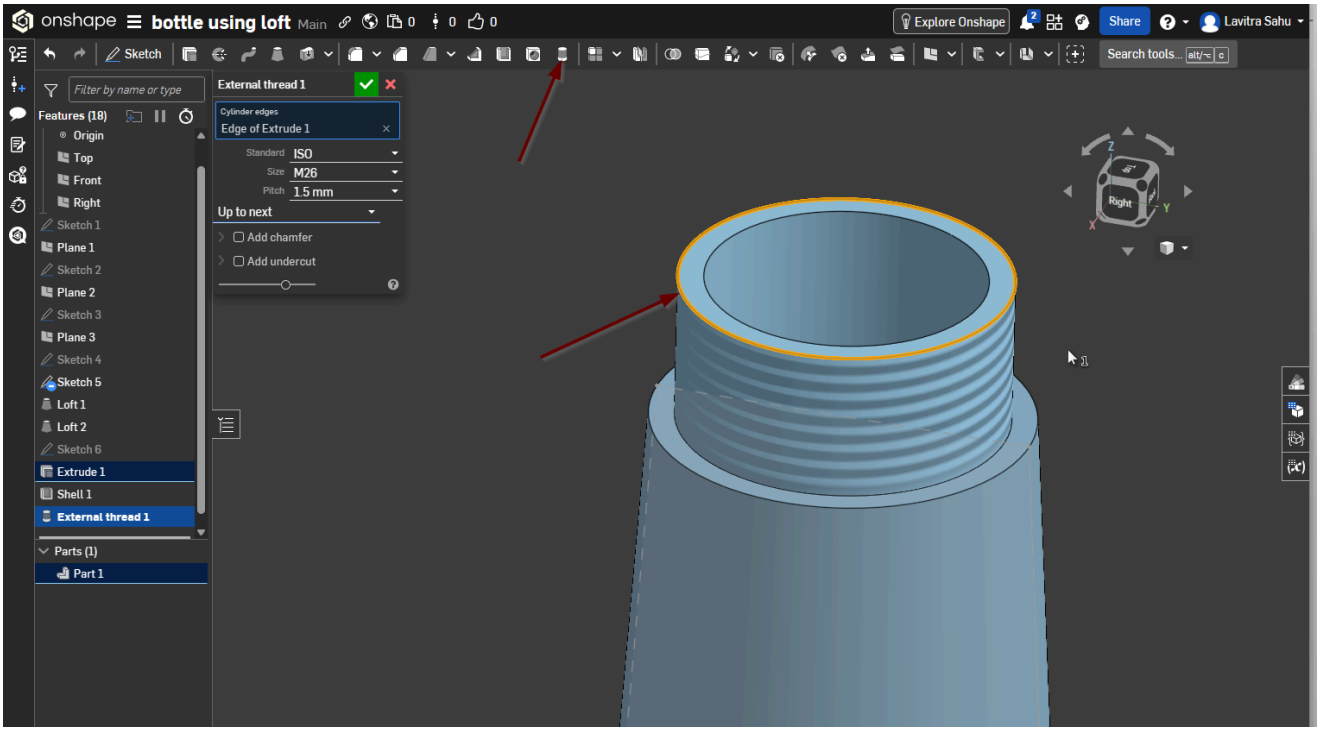
Step 15: Apply Shell



- Use the **Shell tool**

- Apply a **2 mm shell thickness**

Step 16: Add Thread



- Go to the **Thread tool**
- Select the top circular edge
- Threads are created successfully

Done

You have successfully used:

- Center rectangle and fillets
- Offset planes
- Multiple sketches
- Intersection and guide curves
- Loft and additional lofts
- Extrude, shell, and thread tools

This completes an **advanced Onshape modeling workflow**, similar to professional CAD design processes.