DESIGN DOCUMENT

SIFT

Contents

Features

- **Maintain and update a printer vendor database**
  - Notifies user when printer fails to be added

- **Search for appropriate printers**, *see "Search Parameters"*

- **Sort printers by best match**
  - Best match on top of results
  - Highlights acceptable parameters

- **Print/export search results**

Search Filters

Material Parameters

SIFT allows the user to search for printer vendors based on the desired material and its associated resilience properties.
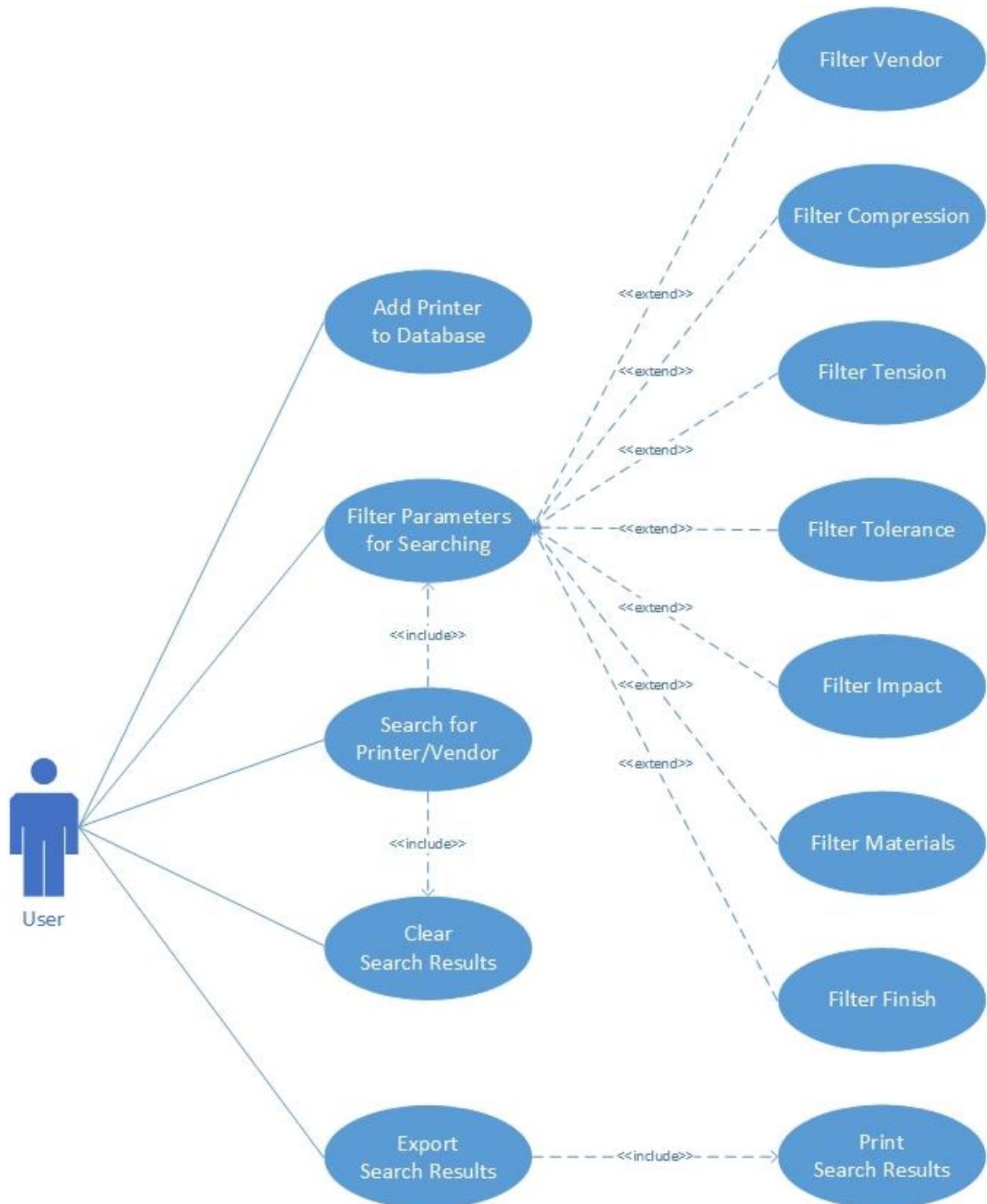
Included materials: Aluminum, stainless

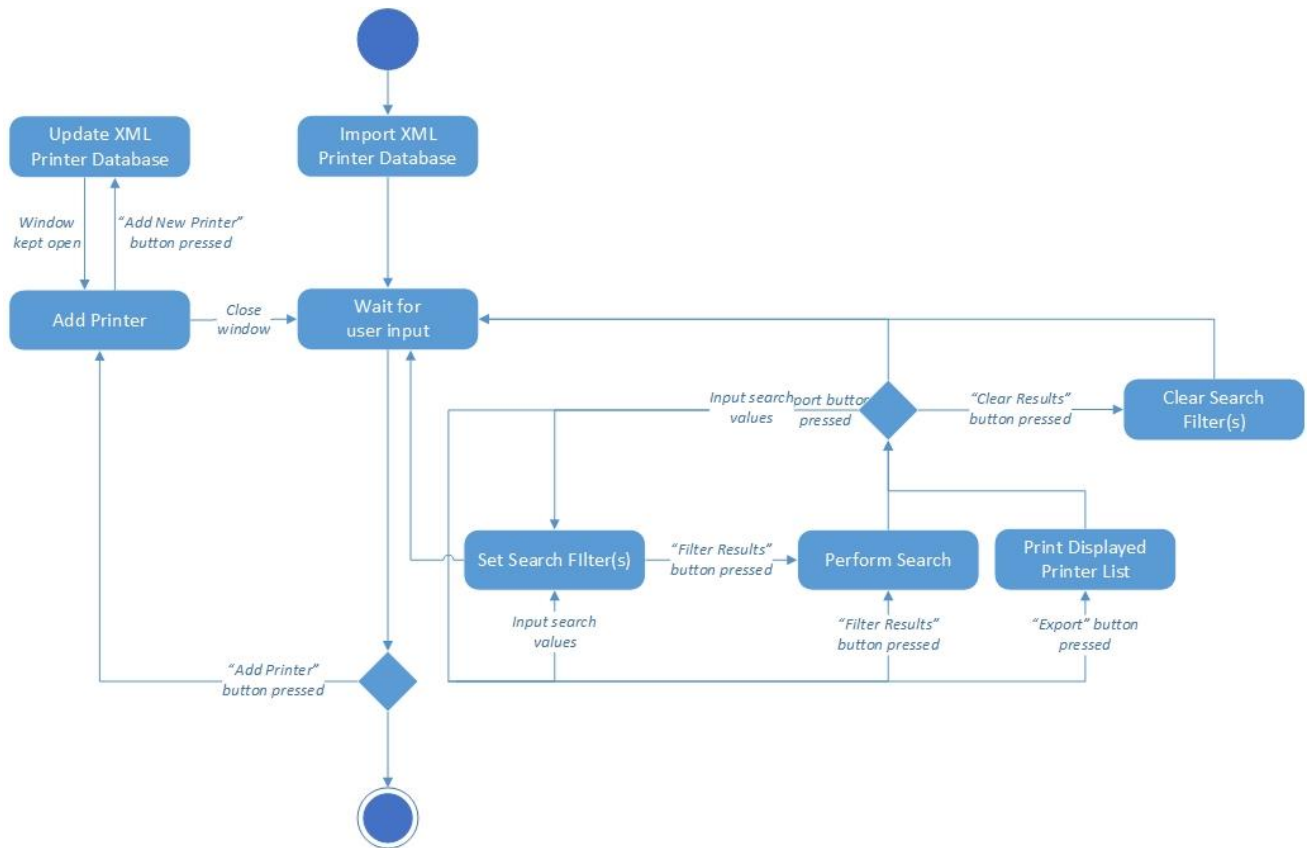| Resilience Properties		
	Minimum	**Maximum**
Compression (mPa)	0	1000
Impact (N)	0	400
Tension (N)	0	1000

Vendor Parameters

In addition, the user can perform searches on an acceptable range of tolerance, available finishes, and vendor names.

Printer Features	
Tolerance	1×10^{-7} to 0.1 mm
Included finishes	Matte, gloss

Use Case Diagram

Activity Diagram

Class Descriptions

Class	Description
AddPrinterFrame	Creates a window to add a printer to the XML file.
AddPrinterLabel	Creates a parameter component with a name label and text input field for **AddPrinterFrame**.
Main	Serves as the main point of execution by launching a **MenuWindow**.
MenuWindow	Creates the main program window with a **SearchFiltersPanel**, **SearchResultsPanel**, and tool bar.
MouseActionListener	Allows a component to display associated vendor information when clicked.
Printer	Represents a 3D metal printer.
PrinterLabel	Creates a JLabel that represents a single printer result entry in the search results interface.
PrinterList	Organizes databased printers into a list of printer objects and manages their search match properties.
RangedTextField	Provides a numerical search field with minimum and maximum values for **SearchFiltersPanel**.
SearchFiltersPanel	Creates a panel that displays the printer search filters.
SearchResultsPanel	Creates a panel that displays the printer search results.
ToolBox	Contains an assortment of engine components including: ⌃ *addPrinter* : Addition of a new printer to the XML file ⌃ *generatePrinterList* : Conversion of XML file into a **PrinterList** ⌃ *displayPrinterNode* : Console-viewing of currently listed printers
VendorInfoFrame	Creates a window that displays vendor information.
VendorLabel	Creates a JLabel with the following vendor information: ⌃ Name and website ⌃ Additional printers ⌃ Ease of customization ⌃ Additional information

State Diagram