

# Software Engineering Assignment 1

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## Task 1

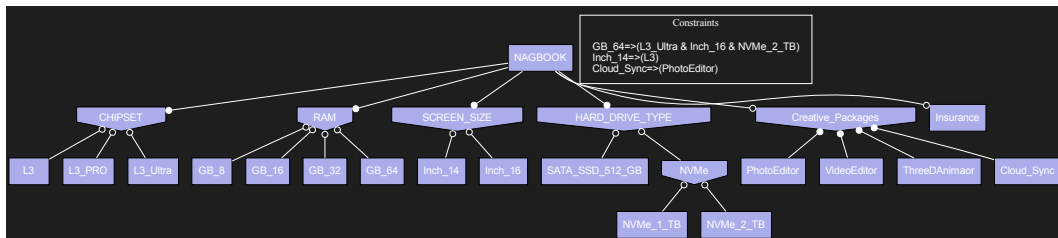


Figure 1: Nagbook Laptop Models Feature Diagram

## Task 2

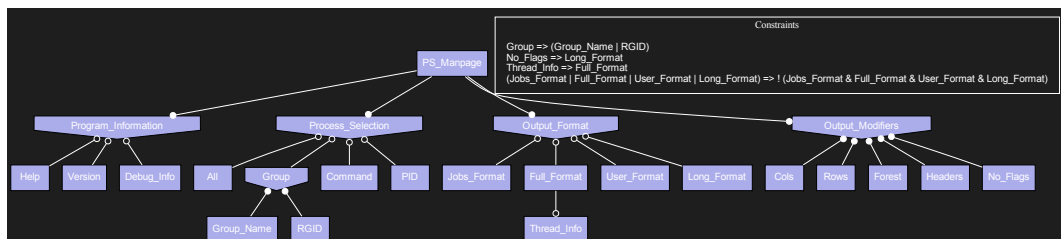


Figure 2: Feature Model of the PS ManPage

## Task 3

A.

$$\begin{aligned}
 \llbracket fn \rrbracket = & TAR \\
 & \wedge (Opmode \Leftrightarrow TAR) \wedge ((Create \vee Delete) \Leftrightarrow OPmode) \wedge (Touch \Rightarrow Extract)) \\
 & \wedge (Format \Leftrightarrow TAR) \wedge ((GNU \vee Posix) \Leftrightarrow Format) \wedge \neg(GNU \wedge Posix) \\
 & \wedge (Archive \Leftarrow TAR) \\
 & \wedge (File \Rightarrow TAR) \\
 & \wedge (Options \Leftrightarrow TAR) \wedge ((Interactive \vee Ownwe \vee RemoveFiles) \Leftrightarrow Options)
 \end{aligned}$$

B. Generalisation:

Before

$$\wedge(Options \Rightarrow TAR) \wedge ((GNU \vee Posix) \Leftrightarrow Format) \wedge \neg(GNU \wedge Posix))$$

After

$$\wedge(TAR \Leftrightarrow Format) \wedge ((GNU \vee Posix) \Leftrightarrow Format)$$

## Task 4

$$\begin{aligned}
 fn = & \star \langle \langle \wedge \langle \langle Burger, \\
 & \bullet \langle \langle Burger, Bun \rangle \rangle \\
 & \bullet \langle \langle Burger, \Delta \langle \langle Patty, Vegan, Chicken, Beef \circ Wagyu \rangle \rangle \rangle \\
 & \bullet \langle \langle Burger, \Delta \langle \langle Sauce, Ketchup, Mayo, ChiliSalsa \rangle \rangle \rangle \\
 & \bullet \langle \langle Burger, \blacktriangle \langle \langle Veggies, Pickels, Lettuce, Chilli \Delta \langle \langle Chilli, \Delta \langle \langle Habanero, Jalapeno \rangle \rangle \rangle \rangle \\
 & \circ \langle \langle Burger, \blacktriangle \langle \langle Addons, FriedOnion, Eggs, Bacon \rangle \rangle \rangle \\
 & \circ \langle \langle Burger, DoublePatty \rangle \rangle
 \end{aligned}$$