Oh last day, day 25. My memory deceived me , I expected that we have 30 challenges for 30 days, but no, only 25 challenges, and seem like it end exactly in Christmas

In[101]:=
```
input = StringTrim[...] ;
```

In[102]:=
```
smallInput = StringTrim[...] ;
```

hum, what kind of this problem, the data look like tree, or graph.Let try to model it, I still have no idea what we should do here.

In[189]:=
```
parseRule = (x ↦ {x[[1]] → (StringTrim[x[[2]]] // StringSplit[#, " "] &)}) /@
    (StringSplit[#, {":", ","}] & /@ ( input // StringSplit[#, "\n"] &));
```

In[191]:=
```
parseRule // Short
```

Out[191]//Short=
```
{{hgm → {krj, psx, xsl, bpt}}, {pgz → {mhs, rsb, mvk, jjz}}, ≪1211≫, {trh → {vql, jxj}}}
```

In[182]:=
```
convertDiagramToRules[diagram_List] := Module[{
    key = Keys @@ diagram,
    values = Values @@ diagram
  },
  key ⟼ # & /@ values
 ]
```

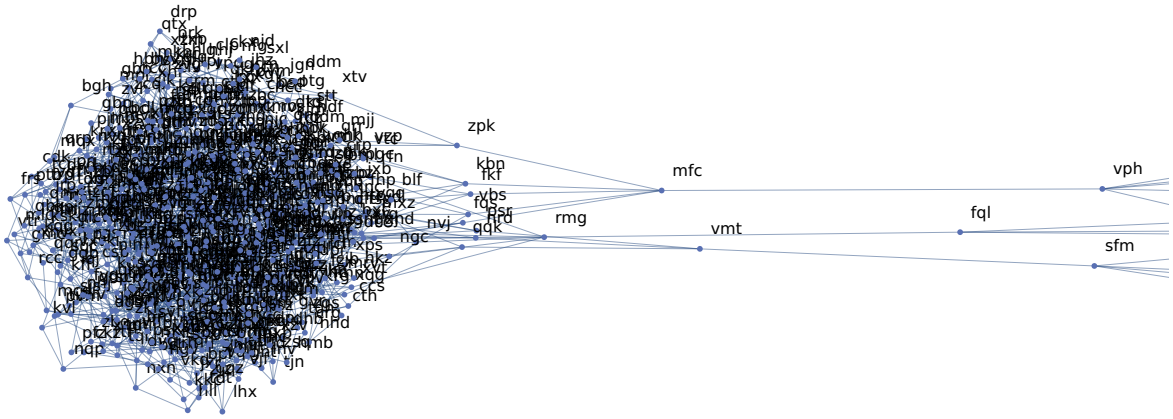
In[194]:=
```
graphRules = convertDiagramToRules[#] & /@ parseRule // Flatten;
graphRules // Short
```

Out[195]//Short=
```
{hgm ⟼ krj, hgm ⟼ psx, hgm ⟼ xsl, hgm ⟼ bpt,
  ≪3306≫, jmd ⟼ rxv, jmd ⟼ djj, trh ⟼ vql, trh ⟼ jxj}
```

In[197]:=

```
graph = Graph[graphRules, VertexLabels → Automatic]
```

Out[197]=



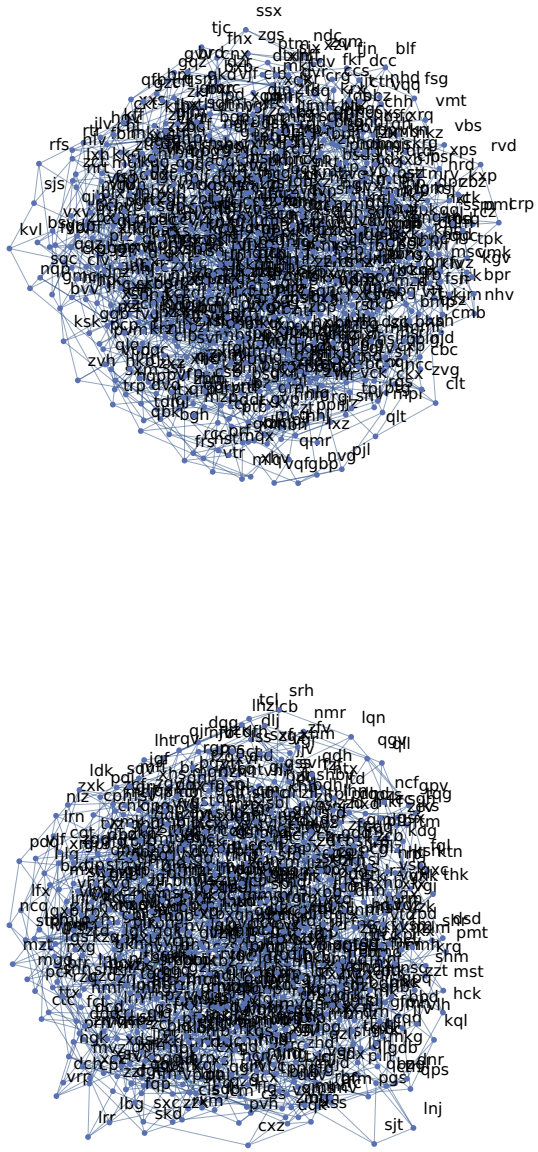
Oh well, just look at the graph, we will see 3 pair need to cut is {mfc,vph},{rmg,fql},{vmt,sfm}, it a bit hard to see, we need test it

remove those guessed edges

In[201]:=

```
disconnectedGraph = EdgeDelete[graph, {"mfc" ⟷ "vph", "rmg" ⟷ "fql", "vmt" ⟷ "sfm"}]
```

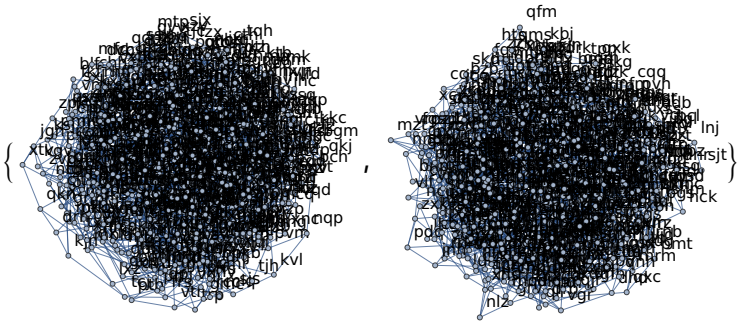
Out[201]=



Oh, good good

In[203]:=
```
{g1, g2} = ConnectedGraphComponents[disconnectedGraph]
```

Out[203]=



In[210]:=
```
VertexCount /@ {g1, g2} /. List → Times
```

Out[210]=
```
551 196
```

Oh my gosh, Wolfram language so powerful, I don' t even need implement the algorithm for my own

Scratchpad

In[99]:=
```
SetDirectory["~/nhannht-projects/aoc2023"];
```

In[100]:=
```
NotebookSave[EvaluationNotebook[], FileNameJoin[{Directory[], "25.nb"}]]
```

In[218]:=
```
Export[FileNameJoin[{Directory[], "25.pdf"}], EvaluationNotebook[]]
```

Out[211]=
```
/home/vermin/nhannht-projects/aoc2023/25.pdf
```

In[217]:=
```
SetOptions[SelectedNotebook[],
 PrintingStyleEnvironment → "Printout", ShowSyntaxStyles → True]
```

In[216]:=
```
SystemOpen["/home/vermin/nhannht-projects/aoc2023/25.pdf"]
```