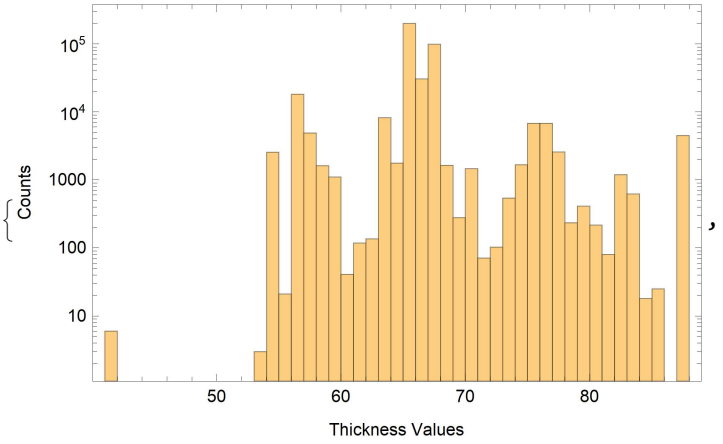
```
In[ ]:= SetDirectory[
          "C:/Users/serha/OneDrive/Masaüstü/MyRepo/master_thesis_MMT003/210421_OR_model_and
            _other_lines_sliding"];

In[ ]:= datafull = Import["../data/ccm1_data_modified.csv", HeaderLines → 2];
        datafull[[1]]
        Dimensions@datafull

Out[ ]= {1, 122, 115 686, CCM1, 14.12.16, 16000181-04, 148 956,
         #NAME?, 1.24 × 10^6, 87, 2.74 × 10^9, 3.35 × 10^9, 16 000 181, 26, 0, 0}

Out[ ]= {459 203, 16}

In[ ]:= nullpos = Position[datafull[[All, 9]], _?(Head@# == String &)];
        datafull = Delete[datafull, nullpos];

In[ ]:= (* mostlyzeropos=Position[datafull[[All,9]],_?(#==0&)][[{2,3}]];
        datafull=Delete[datafull,mostlyzeropos]; *)

In[ ]:= deletepos = Position[datafull[[All, 10]], _?(5 * 10^7 < # &)];
        datafull = Delete[datafull, deletepos];

In[ ]:= deletepos2 = Position[datafull[[All, 9]], _?(10^9 < # &)];
        datafull = Delete[datafull, deletepos2];

In[ ]:= datafull[[Flatten@Position[datafull[[All, 9]], _?(500 000 < # &)], 9]] /= 1000;

In[ ]:= datafull = datafull[[Flatten@Position[datafull[[All, 10]], _?(0 ≠ # &)]]];
```

In[ ]:=
```
{Histogram[datafull[[All, 10]], ScalingFunctions → "Log", PlotRange → Full,
  Frame → True, FrameLabel → {"Thickness Values", "Counts"}, ImageSize → Medium],
 Histogram[datafull[[All, 9]], ScalingFunctions → "Log", PlotRange → Full,
  Frame → True, FrameLabel → {"Width Values", "Counts"}, ImageSize → Medium]}
```

Out[ ]=



,

In[ ]:=
```
density[thick_, width_, length_, weight_] := N@weight / (thick * width * length);
```

In[ ]:=
```
thickvaluesthkpos = datafull[[All, 10]];
widthvaluesthkpos = datafull[[All, 9]];
lengthvaluesthkpos = datafull[[All, 12]];
weightvaluesthkpos = datafull[[All, 11]];
densities = Quiet@Table[density[thickvaluesthkpos[[i]], widthvaluesthkpos[[i]],
     lengthvaluesthkpos[[i]], weightvaluesthkpos[[i]]], {i, Length@thickvaluesthkpos}];
densities = densities /. {Indeterminate → 0., ComplexInfinity → 0.};
KeySort@Counts@densities
```

Out[ ]=
$\langle | -0.0003581 \to 6,\ 0. \to 7,\ 7.37584 \times 10^{-14} \to 8,\ 7.40346 \times 10^{-14} \to 8,$
$7.42935 \times 10^{-14} \to 6,\ 7.44644 \times 10^{-14} \to 7,$ ··· 17 479 ··· $, 767.356 \to 7,$
$784.85 \to 7,\ 785.532 \to 6,\ 815.893 \to 13,\ 817.867 \to 7,\ 827.775 \to 6 | \rangle$

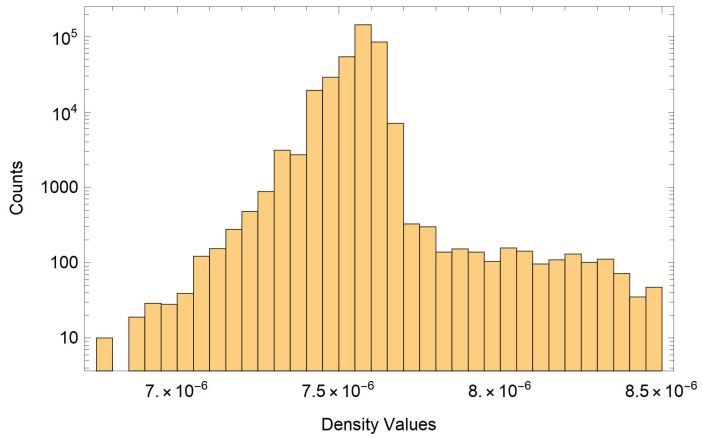
large output | show less | show more | show all | set size limit...

In[ ]:=
```
datafull =
  datafull[[Flatten@Position[densities, _?(6.5 * 10^(-6) < # < 8.5 * 10^(-6) &)]]];
```

In[ ]:=
```
thickvaluesthkpos = datafull[[All, 10]];
widthvaluesthkpos = datafull[[All, 9]];
lengthvaluesthkpos = datafull[[All, 12]];
weightvaluesthkpos = datafull[[All, 11]];
densities = Quiet@Table[density[thickvaluesthkpos[[i]], widthvaluesthkpos[[i]],
     lengthvaluesthkpos[[i]], weightvaluesthkpos[[i]]], {i, Length@thickvaluesthkpos}];
densities = densities /. {Indeterminate → 0., ComplexInfinity → 0.};
```

In[ ]:=
```
Histogram[densities, ScalingFunctions → "Log", PlotRange → Full,
 Frame → True, FrameLabel → {"Density Values", "Counts"}, ImageSize → Medium]
```

Out[ ]=



In[ ]:=
```
Length@datafull
```

Out[ ]= 348 291

```
In[ ]:= datafull[[1]]
```

```
Out[ ]= {1, 122, 115 686, CCM1, 14.12.16, 16000181-04, 148 956,
  #NAME?, 1240., 87, 2.74 × 10^9, 3.35 × 10^9, 16 000 181, 26, 0, 0}
```

```
In[ ]:= (* Sort[datafull,#1[[2]]<#2[[2]]&]==
  Sort[datafull,AbsoluteTime[{#[[5]],{"Day","Month","YearShort"}}]&] *)
```

```
In[ ]:= datafullsorted = Sort[datafull, #1[[2]] < #2[[2]] &];
```

```
In[ ]:= (* checking if sequences are revealing consecutive *)
Length@Table[DeleteDuplicates@i, {i, Split[datafullsorted[[All, 1]], #2 == #1 &]}]
Length@DeleteDuplicates[datafullsorted[[All, 1]]]
```

```
Out[ ]= 348 291
```

```
Out[ ]= 348 291
```

Deletion of sequences less than 50

```
In[ ]:= deletepos3 = Flatten@Table[Position[datafullsorted[[All, 2]], i],
    {i, Keys@Cases[Normal@Counts@datafullsorted[[All, 2]], _?(Values[#] < 50 &)]}];
datafullsorted = Delete[datafullsorted, Partition[deletepos3, 1]];
```

```
In[ ]:= datafullsorted[[1000]]
```

```
Out[ ]= {8470, 181, 118 123, CCM1, 04.01.17, 17000721-02, 150 867,
  #NAME?, 1290., 65, 2.07 × 10^9, 3.25 × 10^9, 17 000 721, 26, 0, 0}
```

```
In[ ]:= Dimensions@datafullsorted
```

```
Out[ ]= {347 418, 16}
```

```
In[ ]:= (* Export["ccm_manipulated_347418.csv",datafullsorted] *)
```