```
In[27]:=  ListPlot[{binAvgComp , binRandAvgComp },
          AxesLabel → "Average  Comparisons  in BinarySearch ",
          PlotLegends → {"Normal", "Random"}]
         ListPlot[{binAvgTime , binRandAvgTime }, AxesLabel → "Average  Time  in BinarySearch ",
          PlotLegends → {"Normal", "Random"}]

         f[x_] := Log2[x];
         With[{x := 1000 xp}, tab = Table[{x, f[x]}, {xp, 1, 1000}]];
         ListPlot[{binAvgComp , binRandAvgComp , tab},
          AxesLabel → "Average  Comparisons ", PlotLegends → {"Normal", "Random", "log2[n]"}]

         ListPlot[{binAvgComp / GroupBy[tab, First → Last, Mean],
           binRandAvgComp / GroupBy[tab, First → Last, Mean]},
          PlotLegends → {"Constant  near  log2(n) in normal  Comps",
            "Constant  near  log2(n) in random  Comps"}]

         ListPlot[{binAvgTime / GroupBy[tab, First → Last, Mean],
           binRandAvgTime / GroupBy[tab, First → Last, Mean]}, PlotLegends →
           {"Constant  near  log2(n) in normal  time", "Constant  near  log2(n) in random  time"}]
```


Average Comparisons in BinarySearch

Average Time in BinarySearch

Average Comparisons

Out[31]=

- Normal
- Random
- log2[n]

Out[32]=

- Constant near log2(n) in normal Comps
- Constant near log2(n) in random Comps

Out[33]=

- Constant near log2(n) in normal time
- Constant near log2(n) in random time