

```

n = 100; (*number of nodos*)
maxindegree = 100; (*max in-degree*)
repsp = 10; (*times we use the same probability value p*)

complexity = Table[0, repsp];
(*list to save K-complexity (1-D representation) for the same p value*)
complexitymat = Table[0, repsp];
(*list to save K-complexity (adjacency matrix) for the same p value*)
entropy = Table[0, repsp]; (*list to save entropy values for the same p value*)
ShannonEntropy = Table[0, maxindegree]; (*list to save the entropy for each p value*)
seqnet = Table[0, maxindegree];
(*list to save the K-complexity for each p value (1-D representation)*)
Matnet = Table[0, maxindegree];
(*list to save the K-complexity for each p value (2-D representation)*)

Do[
Do[
(*create the random digraph*)
k = 1; (*in-degree*)
Mnodes = {}; (*adjacency matrix*)
For[i = 1, i ≤ n, i++ ×
AppendTo[Mnodes, Table[0, n]]] ×
For[i = 1, i ≤ n, i++,
flag = 0;
While[flag < k, position = RandomInteger[{1, n}];
If[Mnodes[[i, position]] == 0, Mnodes[[i, position]] = 1; flag++, ]]];

rg = Transpose[Mnodes]; (*random digraph*)
mat = Flatten[rg]; (*1-D representation of the random graph*)
If[First[mat] == 0, output = "0" <> ToString[FromDigits[mat]],
output = ToString[FromDigits[mat]]]; (*transform the list into a string*)

complexity[[j]] = StringBDM[output];
complexitymat[[j]] = BDM[rg, 4] // N;
entropy[[j]] = Entropy[output];
, {j, repsp}];

(*perform a trimmed mean discarding the first and fourth quartiles*)
seqnet[[1]] = TrimmedMean[complexity,
{ (Length[Select[complexity, # < Quantile[complexity, 1/4] &]]) / Length[complexity],
(Length[Select[complexity, # > Quantile[complexity, 3/4] &]]) / Length[complexity] }];
Matnet[[1]] = TrimmedMean[complexitymat,
{ (Length[Select[complexitymat, # < Quantile[complexitymat, 1/4] &]]) / Length[complexitymat],
(Length[Select[complexitymat, # > Quantile[complexitymat, 3/4] &]]) / Length[complexitymat] }];
ShannonEntropy[[1]] = TrimmedMean[entropy,
{ (Length[Select[entropy, # < Quantile[entropy, 1/4] &]]) / Length[entropy],
(Length[Select[entropy, # > Quantile[entropy, 3/4] &]]) / Length[entropy] }];
, {1, 1, maxindegree}]

(*plot the results*)
ListLinePlot[{Rescale[seqnet, {0, Max[seqnet]}],
Rescale[Matnet, {0, Max[Matnet]}], Rescale[ShannonEntropy, {0, Max[ShannonEntropy]}]},
AxesLabel → Automatic, PlotRange → All, PlotLegends →
Placed[{ "K-Complexity (1-D representation)", "K-Complexity (adjacency matrix)", "Entropy" },
{.5, .15}], Frame → True, GridLines → Automatic, FrameLabel → {"d"

```