EEMB 595TE Fall 2021

Task 1: population with random migration and immigration

In[186]:=
```
(*clear previous simulations*)
Clear[n];
(*initial population*)
n[0] = 40;
(*probability of 1 individual leaving*)
α = .2;
(*probability of 1 individual arriving*)
β = .2;
(*time steps*)
tmax = 5000;
(*migration and immigration*)
migration := RandomVariate[BernoulliDistribution[β]];
immigration := RandomVariate[BernoulliDistribution[α]];
(*update step*)
n[t_] := n[t] = Max[0, n[t - 1] - immigration + migration];
(*simulate*)
data = Table[n[t], {t, 0, tmax}];
(*simulate and plot*)
ListPlot[data, Joined → True, PlotRange → Full]
```

Out[195]=