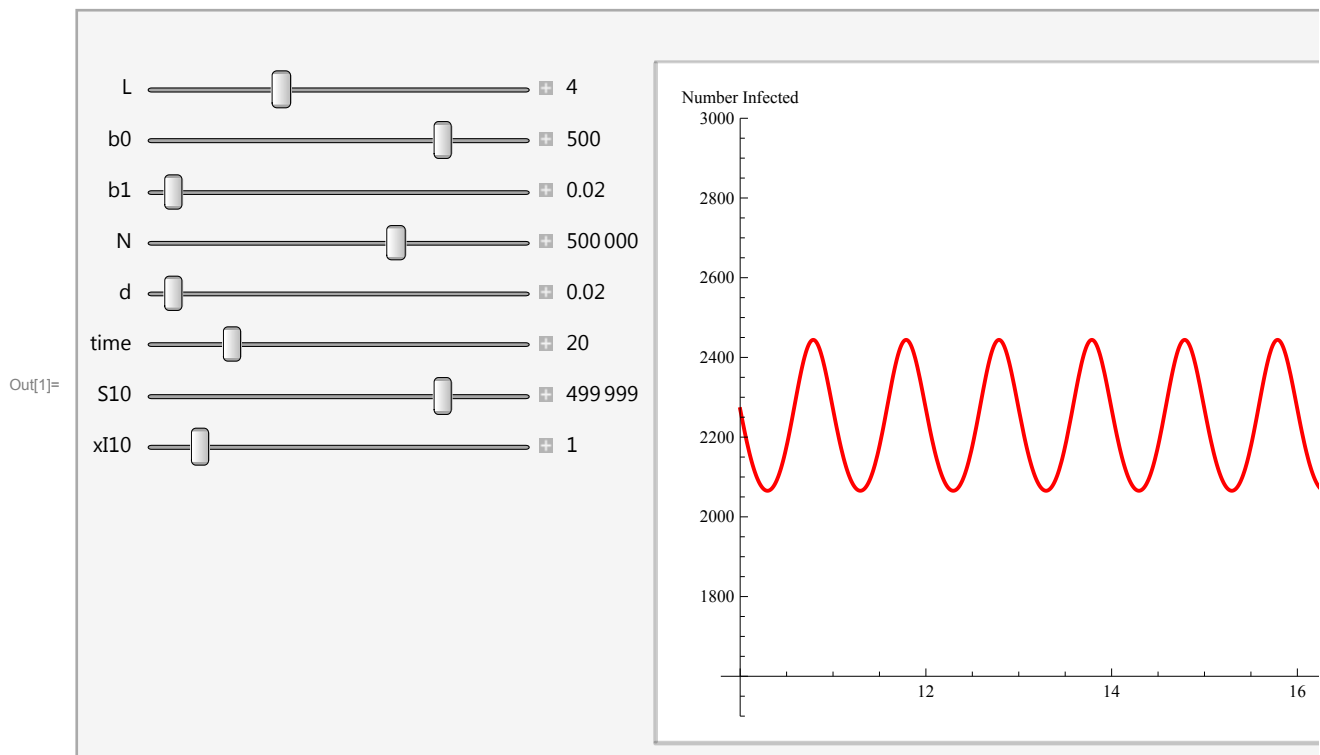```
In[1]:= Manipulate[Module[{soln1, plot1, show1},
    b[t_] := b0 (1 + b1 Cos[2 Pi t]);
    soln1 = NDSolve[
      {S1'[t] == (N - S1[t] - xI1[t]) / L - (b[t] xI1[t] S1[t]) / N,
       xI1'[t] == (b[t] S1[t] xI1[t]) / N - xI1[t] / d,
       S1[0] == S10, xI1[0] == xI10}, {S1, xI1}, {t, 0, time}];
    plot1 = Plot[xI1[t] /. soln1, {t, 10, time},
      PlotRange → {1500, 3000}, PlotStyle → {{Red, Thick}}];
    show1 = Show[plot1, AxesLabel → {"Time(years)", "Number Infected"},
      AxesOrigin → Automatic, ImageSize → Large]],
   {{L, 4}, 1, 10, Appearance → "Labeled"},
   {{b0, 500}, 100, 600, Appearance → "Labeled" },
   { {b1, .02}, 0, 1, Appearance → "Labeled" },
   {{N, 500 000}, 100 000, 700 000, Appearance → "Labeled"},
   {{d, 0.02}, 0, 1, Appearance → "Labeled"},
   {{time, 20}, 1, 100, Appearance → "Labeled"},
   {{S10, 499 999}, 100 000, 600 000, Appearance → "Labeled"},
   {{xI10, 1}, 0, 10, Appearance → "Labeled"}
  ]
```

Out[1]=



```
(*,{{b0,500},100,600,Appearance→"Labeled" },
 { {b1,.02},0,1,Appearance→"Labeled" }*)
```