C4

October 3, 2016

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In [1]: days = 20*5

        DemandC4 = [1800 1400 1700 1400 1600 0]

        Mfactor = 60;
        C41factor = 4;

        InvC4 = zeros(days+50,1)
        InvM = zeros(days+50,1)
        InvC41 = zeros(days+50,1)

        InvM[1:end] = 20;
        InvC41[1:end] = 40;

        cycleC4 = 1664

        t=1;
        demandMonth = 1
        nOrders=0
        noOrder = true
        while t < days
            if t >= (demandMonth*20)
                InvC4[t:end] -= DemandC4[demandMonth]
                demandMonth += 1
            end
            if InvC4[t] > DemandC4[demandMonth]
                keepProduction = false
            else
                keepProduction = true
            end

            Mleft = (DemandC4[demandMonth] - InvC4[t]) * Mfactor
            C41left = (DemandC4[demandMonth] - InvC4[t]) * C41factor
            if ((InvM[t] < Mleft) || (InvC41[t] < C41left)) && noOrder && keepProduction
                nOrders+=1
                tLast = t
                tAdd = round(Int64,2*randn(1)[1] + 5)
                if tAdd < 0
                    t+=0
                else
                    t+=tAdd
                end
            InvM[tLast:t] = InvM[tLast]
            InvC41[tLast:t] = InvC41[tLast]
            InvC4[tLast:t] = InvC4[tLast]

            InvM[t:end] += max(DemandC4[demandMonth]* Mfactor, cycleC4 * Mfactor * 7)
            InvC41[t:end] += max(DemandC4[demandMonth]* C41factor, cycleC4 * C41factor * 7)
        else
            if InvC4[t] > DemandC4[demandMonth]
                keepProduction = false
            else
                keepProduction = true
            end

            while ((InvM[t]-Mfactor)>0) && ((InvC41[t]-C41factor)>0) && ((t+1)<= days) && keepProduc
                prod = round(Int64, 200*randn(1)[1] + cycleC4/2)
                nM = div(InvM[t], Mfactor)
                nC41 = div(InvC41[t], C41factor)

                nC4 = min(nM, nC41, prod)

                InvC4[t:end] += nC4
                InvM[t:end] -= nC4*Mfactor
                InvC41[t:end] -= nC4*C41factor
                defect = rand()/10

                InvC4[t:end] -= round(Int64, InvC4[t+1]*defect)
                if InvC4[t] > DemandC4[demandMonth]
                    break
                end
                t+=1
                if t >= (demandMonth*20)
                    InvC4[t:end] -= DemandC4[demandMonth]
                    demandMonth += 1
                end
                Mleft = (DemandC4[demandMonth] - InvC4[t]) * Mfactor
                C41left = (DemandC4[demandMonth] - InvC4[t]) * C41factor
                if ((InvM[t] < Mleft) || (InvC41[t] < C41left)) && noOrder
                    noOrder = false
                    nOrders += 1
                    tLast = t
                    tAdd = round(Int64,2*randn(1)[1] + 5)
                    if tAdd < 0
                        tOrder=t
                    else
                        tOrder=tAdd+t
                    end

                    InvM[tLast:tOrder] = InvM[tLast]
                    InvC41[tLast:tOrder] = InvC41[tLast]
                    InvC4[tLast:tOrder] = InvC4[tLast]
                end
                if !noOrder
                    if !(((InvM[t]-Mfactor)>0) && ((InvC41[t]-C41factor)>0) && ((t+1)<= days) && ke
                        t = tOrder
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                            noOrder = true
                            InvM[t:end] += max(Mleft* Mfactor, cycleC4 * Mfactor * 7)
                            InvC41[t:end] += max(C41left* C41factor, cycleC4 * C41factor * 7)
                        end

                    end
                end
            end
            t+=1
        end

        nOrders

Out[1]: 1

In [2]: using Plots
        plot(1:(days+50), InvM/Mfactor, label = "M scaled",title="Inventory over 5 months")
        plot!(1:(days+50), InvC41/C41factor, label="C41 scaled")
        plot!(1:(days+50), InvC4, label="C4 actual")

        using Images
        using FileIO
        savefig("c4invall.png")

[Plots.jl] Initializing backend: pyplot

In [3]: plot(1:(days+50), InvC4, label="C4", title="Inventory of C4")

        #using Images
        #using FileIO
        savefig("c4inv.png")

In [ ]:
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