**Code 1** (similar to the Excel one)

%% Monte Carlo Corporate Finance

clc; clear;

V =9500; % asset value

SI = 500; % shipping and installation costs

S = 2000; % Salvage value

NWK= 4000; % increase in net working capital

Q = 15000; % units sold

P = 2; % price

VC = 0.6; % variables costs as percentage of sales

tax = 0.4; % the marginal tax rate

infl = 0.02; % inflation rate

r = 0.15; % the required rate of return

T = 4; % number of time periods

%% Initiate Monte Carlo

B = 10000; % Number of Monte Carlo loops

NPV =zeros(B,1);

% generate random values for inflation

std\_infl = 0.3;

infl = normrnd(infl,std\_infl,[B,1]);

% generate random values for salvage price

std\_S = 400;

S = normrnd(S,std\_S,[B,1]);

% generate simulated values for price and quantity (correlated)

mu = [P;Q];

std\_price = 0.3;

std\_quant = 2500;

corr\_pq = -0.8;

sigma = zeros(2,2);

sigma(1,1) = std\_price^2;

sigma (2,2) = std\_quant^2;

sigma(2,1) = std\_price\*std\_quant\*corr\_pq;

sigma(1,2) = sigma(2,1);

R = mvnrnd(mu,sigma,B);

sales = R(:,1).\*R(:,2);

%% Loop

for i=1:B

% Initial cash outflow

ICF = V+SI+NWK;

FC = 5000; % fixed overheads

d = [0.20 0.32 0.192 0.1152 0.1152 0.0576]; %Depreciation rates

BV = V+SI; % book value of asset

dep = BV.\*d;

% Supplemental Cash Flows

for t=1:T

% first account for inflation effects

sales(i) = sales(i)\*(1+infl(i));

% FC = FC\*(1+infl(i)); % Activate or deactivate to experiment on

% the effect of inflaction on fixed costs

EBITDA = sales(i)\*(1-VC)-FC;

EBT = EBITDA-dep(t);

NI(t)=EBT\*(1-tax);

SCF(t) = NI(t)+dep(t);

SPV(t) = SCF(t)/(1+r)^t; % the present value of the SCF

BV = BV-dep(t); % remaining PV of asset

end

% Terminal CF

TCF = S(i)-(S(i)-BV)\*tax+NWK;

TPV = TCF/(1+r)^T; % Present value of terminal cash flow

NPV(i) = -ICF+sum(SPV)+TPV;

end

hist(NPV,100)

prob\_success = sum(NPV>=0)/B

**Output**

prob\_success = 0.6241



**Code 2** (I included here market shares)

%% Monte Carlo Corporate Finance (

clc; clear;

V =9500; % asset value

SI = 500; % shipping and installation costs

S = 2000; % Salvage value

NWK= 4000; % increase in net working capital

market\_size = 150000;

share = 0.1;

Q = market\_size\*share; % units sold

P = 2; % price

VC = 0.6; % variables costs as percentage of sales

tax = 0.4; % the marginal tax rate

infl = 0.02; % inflation rate

r = 0.15; % the required rate of return

T = 4; % number of time periods

%% Initiate Monte Carlo

B = 10000; % Number of Monte Carlo loops

NPV =zeros(B,1);

% generate random values for inflation

std\_infl = 0.1;

infl = normrnd(infl,std\_infl,[B,1]);

% generate random values for salvage price

std\_S = 400;

S = normrnd(S,std\_S,[B,1]);

% generate random values for market size

std\_msize = 20000;

market\_size = normrnd(market\_size,std\_msize,[B,1]);

% generate simulated values for price and share (correlated)

mu = [P;share];

std\_price = 0.3;

std\_share = 0.05;

corr\_ps = -0.5;

sigma = zeros(2,2);

sigma(1,1) = std\_price^2;

sigma (2,2) = std\_share^2;

sigma(2,1) = std\_price\*std\_share\*corr\_ps;

sigma(1,2) = sigma(2,1);

R = mvnrnd(mu,sigma,B);

sales = R(:,1).\*R(:,2).\*market\_size;

%% Loop

for i=1:B

% Initial cash outflow

ICF = V+SI+NWK;

FC = 5000; % fixed overheads

d = [0.20 0.32 0.192 0.1152 0.1152 0.0576]; %Depreciation rates

BV = V+SI; % book value of asset

dep = BV.\*d;

% Supplemental Cash Flows

for t=1:T

% first account for inflation effects

sales(i) = sales(i)\*(1+infl(i));

% FC = FC\*(1+infl(i)); % Activate or deactivate to experiment on

% the effect of inflaction on fixed costs

EBITDA = sales(i)\*(1-VC)-FC;

EBT = EBITDA-dep(t);

NI(t)=EBT\*(1-tax);

SCF(t) = NI(t)+dep(t);

SPV(t) = SCF(t)/(1+r)^t; % the present value of the SCF

BV = BV-dep(t); % remaining PV of asset

end

% Terminal CF

TCF = S(i)-(S(i)-BV)\*tax+NWK;

TPV = TCF/(1+r)^T; % Present value of terminal cash flow

NPV(i) = -ICF+sum(SPV)+TPV;

end

mean(NPV)

hist(NPV,100)

ax = gca;

ax.XRuler.Exponent = 0;

prob\_success = sum(NPV>=0)/B

**Output**

Expected NPV = 4.3505e+03

prob\_success = 0.6295

