```
% Asian Option

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function result = MCAsian(initial,exercise, interest, yearly_obs, runs, sigma, maturity)



periods=yearly_obs*maturity;

deltat=1/yearly_obs;

interest_factor=exp(interest*deltat);

up=exp(sigma*sqrt(deltat));

down=exp(-sigma*sqrt(deltat));

piup=(interest_factor-down)/(up-down);

pidown=1-piup;



prob=unifrnd(0,1,runs,periods);

ups=prob>pidown;

downs=ups-1;

ups_downs=ups+downs;

up_down=exp(ups_downs*sigma*sqrt(deltat));

prices=initial*cumprod(up_down,2);%cumulative product to avoid loops
```

```
avg_price=sum(prices,2)/(periods+1);

callpayoff=max(avg_price-exercise,0);

callpayoff=callpayoff/(interest_factor^periods);

avg_payoff=sum(callpayoff)/runs;



result=avg_payoff;
```