function [best\_feature\_val] = optimizeDay(fin\_model\_low, fin\_model\_med, fin\_model\_high, crit\_model, movie, objParams)

%Returns the optimal day of week that the movie should be released

if movie{1, 'AdjustedBudget'} < 11

internal\_fin\_model = fin\_model\_low;

elseif movie{1, 'AdjustedBudget'} >= 11 && movie{1, 'AdjustedBudget'} <= 75

internal\_fin\_model = fin\_model\_med;

else

internal\_fin\_model = fin\_model\_high;

end

obj\_values\_vec = zeros(1, 7);

day\_set = {'Mon', 'Tue', 'Wed', 'Thurs', 'Fri', 'Sat', 'Sun'};

num = length(day\_set);

%First, zero out evry day:

for i=1:num

movie(1, day\_set{i}) = {0};

end

%Now, calcualte the objective values

%For the first time (just Monday):

movie(1, day\_set{1}) = {1};

box\_office = predict(internal\_fin\_model, movie);

critic = predict(crit\_model, movie);

obj\_value = getObjective(box\_office, critic, objParams);

obj\_values\_vec(1) = obj\_value;

for i=2:num

movie(1, day\_set{i-1}) = {0};

movie(1, day\_set{i}) = {1};

box\_office = predict(internal\_fin\_model, movie);

critic = predict(crit\_model, movie);

obj\_value = getObjective(box\_office, critic, objParams);

obj\_values\_vec(i) = obj\_value;

end

highest\_index = find(obj\_values\_vec==max(obj\_values\_vec));

best\_feature\_val = day\_set{highest\_index};

end