```
[filepath,name,ext] = fileparts(which('demo'));
filepath_model = strjoin({filepath,'example.inp'},'\');
mdl = swmm(filepath_model);

% create a copy of the model to enable editing
dir_model_copy = 'test\';
mdl = mdl.new_copy(dir_model_copy, 'overwrite',true);
mdl.read_inp
```

```
ans =
  swmm with properties:

          dir_main: 'test'
       dir_results: []
          dir_data: []
         dir_debug: []
    dir_data_parent: []
             locked: 0
               name: 'example_editing'
         debug_log: {}
               inp: 'test\example_editing.inp'
               rpt: 'test\example_editing.rpt'
        class_info: [21×6 table]
             title: {'Scenario Run: BASE'}
           options: [1×1 struct]
             files: [0×3 table]
       evaporation: [2×2 table]
         raingages: [1×8 table]
      subcatchments: [3×9 table]
          subareas: [3×8 table]
       infiltration: [3×4 table]
           storage: []
       lid_controls: {3×1 cell}
          lid_usage: [1×11 table]
          snowpacks: []
          junctions: [4×6 table]
           outfalls: [1×6 table]
            outlets: []
           orifices: []
              weirs: []
           conduits: [4×9 table]
          xsections: [4×8 table]
          transects: []
         timeseries: [7×4 table]
             losses: []
             curves: []
             report: {3×1 cell}
               tags: {0×1 cell}
                map: {2×1 cell}
        coordinates: [5×3 table]
           vertices: []
           polygons: [12×3 table]
            symbols: {2×1 cell}
             shapes: []
```

```
% view SWMM class data
disp(mdl.subcatchments)
```

	Name	Rain_Gage	Outlet	Area	PercentImperv	Width	PercentSlope	CurbLen	SnowPack
sc_1	{'S1'}	{'rg_1'}	{'J1'}	4	50	400	0.5	0	{0×0 char}

```
    sc_2    {'S2'}    {'rg_1'}    {'J2'}    4          10          400         0.5           0       {0×0 char}
    sc_3    {'S3'}    {'rg_1'}    {'J3'}    4          90          400         0.5           0       {0×0 char}
```

```
disp(mdl.conduits)
```

```
          Name      From_Node    To_Node     Length    Roughness    InOffset    OutOffset    InitFlow    MaxFlow
          ______    _________    ________    ______    _________    ________    _________    ________    _______

    c_1   {'C3'}     {'J3'}      {'J4'  }     400        0.01          0           0           0           0
    c_2   {'C4'}     {'J4'}      {'OUT1'}     400        0.01          0           0           0           0
    c_3   {'C2'}     {'J2'}      {'J4'  }     400        0.01          0           0           0           0
    c_4   {'C1'}     {'J1'}      {'J2'  }     400        0.01          0           0           0           0
```

```
% draw the model elements on a map
figure('Name','model_layout')
mdl = mdl.draw;
```

```
% run simulation for the model copy
mdl.runsim;
tt_outfl = mdl.results_tt('OUT1');
figure('Name','outflow_hydrograph');
plot_tt(tt_outfl,'o-');
```

```
% randomly sample n new 'Area' values for all subcatchments in model
n = 100;
param = 'PercentImperv';
x = 50 + 50 * randn(height(mdl.subcatchments),n);
lim_upper = 100;
lim_lower = 0;
x(x>lim_upper) = lim_upper;
x(x<lim_lower) = lim_lower;

% plot the sample distributions
fh = figure('Name','sample_distributions')
```

```
fh =
  Figure (68: sample_distributions) with properties:

      Number: 68
        Name: 'sample_distributions'
       Color: [0.9400 0.9400 0.9400]
    Position: [680 558 560 420]
       Units: 'pixels'

  Show all properties
```

```
fh.Position(3:4) = fh.Position(3:4) .* [1, 0.5];
for i2 = 1:height(mdl.subcatchments)
    subplot(1,height(mdl.subcatchments),i2)
    histogram(x(i2,:),'numbins',10)
    title([mdl.subcatchments.Name{i2},': ', param]);
end
```

```
% evaluate each model
tt_aggr = timetable(tt_outfl.Properties.RowTimes);
for i2 = 1:n
    mdl.subcatchments(:,param).Variables = (x(:,i2));
    mdl.write_inp;
    mdl.runsim;
    tt_outfl = mdl.results_tt('OUT1');
    tt_aggr(:,['n',num2str(i2)]) = tt_outfl(:,'inflow');
end

% plot the outflow hydrographs
figure('Name','outflow_hydrograph_MC');
[ah,~] = plot_ue(tt_aggr);
ah.XLim = [mdl.options.START_DATE + hours(12), mdl.options.END_DATE - hours(10)]; % truncate x-
```