Monte Carlo Playground

In[16]:=
```
unitSalesByQuarterInMillions = {
    {"Q1", 25},
    {"Q2", 50},
    {"Q3", 100},
    {"Q4", 75}
  };
annualUnitSales = Total[unitSalesByQuarterInMillions]〚2〛;
normalizedUnitSales = unitSalesByQuarterInMillions〚All, 2〛 /= annualUnitSales;
normalizedUnitSales = N[normalizedUnitSales]
```

Out[19]=

{0.1, 0.2, 0.4, 0.3}

In[20]:=
```
position = RandomInteger[{1, 4}];
accumulator = ConstantArray[0, 4];
iterations = 10 000;
wrapUpper[n_] := If[n ≤ 4, n, 1]
wrapLower[n_] := If[n ≥ 1, n, 4]
wrap[n_] := wrapUpper[wrapLower[n]]
explorations = RandomInteger[{0, 1}, iterations] * 2 - 1;
accumulate[z_] := (
  newPosition = wrap[position + z];
  ratio = normalizedUnitSales〚newPosition〛 /
    (normalizedUnitSales〚newPosition〛 + normalizedUnitSales〚position〛);
  position = If[RandomReal[] < ratio, newPosition, position];
  accumulator〚position〛 += 1;
 )
Map[accumulate, explorations];
expected = normalizedUnitSales * iterations;
```

In[30]:=
```
BarChart[Transpose[{accumulator, expected}],
  ChartLabels → {unitSalesByQuarterInMillions〚All, 1〛, {"sample", "parent"}}]
```

Out[30]=