

Steps:

1. Select starting temperature and initial parameter values
2. Randomly select a new point in the neighborhood of the original
3. Compare the two points using the Metropolis criterion
4. Repeat steps 2 and 3 until system reaches equilibrium state (in practice, repeat the process N times for large N)
5. Decrease temperature and repeat the above steps, stop when system reaches frozen state

```
function simulated_annealing(max_number_of_iterations, temperature_step)
```

```
  temperature <- MAX_TEMPERATURE
```

```
  max_hilltop <- generate_random()
```

```
  max_fitness <- compute_fitness(max_hilltop)
```

```
  while temperature > 0
```

```
    for i in 0, max_number_of_iterations
```

```
      bit_position <- generate_random(1, length(max_hilltop))
```

```
      hilltop <- flip_bit(max_hilltop, bit_position)
```

```
      fitness <- compute_fitness(hilltop)
```

```
      if fitness > max_fitness:
```

```
        max_fitness <- fitness
```

```
        max_hilltop <- hilltop
```

```
      else
```

```
        probability <- random(0, 1)
```

```
        acceptance_probability <- exp((max_fitness - fitness) / temperature)
```

```
        if probability < acceptance_probability
```

```
          max_fitness <- fitness
```

```
          max_hilltop <- hilltop
```

```
    temperature <- temperature * temperature_step
```

```
  return max_hilltop
```