```
* Write as algorithm for simulated annealing
 Objective function: - 1 x + 5 sin x.
Step 1:
          Simulated Annealing (initial_state, initial_temp, cooling_sate, iterations)
    def
          current_state = initial_state
           best state = wesent state
           best- rost - Objective Fren (wesent state)
            temp = initial_temp
                                                    (1) sion feb
           while temp > 1:
        for i ← 1 to iterations:
                         now-state = Neighbour (current - itate)
   ((1) on and was (over-cost = Objective Fun (auch - state)
                          new-cost = Objective Fun ( new_state)
( AP (all ost, rew cort tens) > readon (0. 1)
                                 aver tale = new state
                         if new cost < best cost (128 ) time
                               best state = new state
                               best_cost = new rost
                        temp # = cooling_rate
               seturn (best-state, best-cost)
                                                            -: Tuytuc
   defre consisteméter (stated) se a reserva copede a) elos mos
            east = 0
            for ele in state:
                                            gest cost: 10 85552
                   cost + = ele2 + sin(ele)
            return cost
         Lef Neighbour (thate):
               new_state = state, copy ()
                index = Random (0, length (state) -1)
                new-state [index] + = Random (-1, 1)
                setuen reve state
```

def AP (wer wort, new wort, temp); AP (cour -cost, new -cost) is well as the series of mediands return 1 return e BEH (witnesses the private good bath all the better) priliment totalists elate lestin - stars bases distribute - state had Main function: (alale training) mutow trylo - training def main (): great lower = great : I'mat status initial_temp = 1600 cooling - rate = 0.9 : prostarati of 1 - i sol iterations?"1000" stripin = state was initial state = (Random, uniforn (-10, 10) for -in in large (5)) best state best cost = simu (initial state, initial temp, cooling sate, iteration) peint (f Best state: { best-state }") pent (f"Best cost: [hest cost 3") state on = stets tood if _name_ == 1- main_ . How hid main() story + = codig- hets Estura (best state , but wort) Output: Best state: (-0.363922, -0.615657, -0-367044, = 0.35904; 1-0.338619) O = Tins Best wit: 1.085552 for els in dale: (obs) 6121- she = + 7600 20/24 Ectives cont " del vigibous (shote): C) years state = state was intex = Foundary (0, longth (state) -1) (1) motion + [with it date in

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