```
import random
def fitness(x):
    return x**2
def initialize_population(pop_size, low, high):
    return [random.uniform(low, high) for _ in range(pop_size)]
def selection(population, fitness_values):
    total_fitness = sum(fitness_values)
    selection_probs = [f / total_fitness for f in fitness_values]
    return random.choices(population, weights=selection_probs, k=2)
def crossover(parent1, parent2):
    alpha = random.random()
    offspring1 = alpha * parent1 + (1 - alpha) * parent2
    offspring2 = alpha * parent2 + (1 - alpha) * parent1
    return offspring1, offspring2
def mutate(individual, mutation_rate, low, high):
    if random.random() < mutation_rate:
        return random.uniform(low, high)
    return individual
def genetic_algorithm(pop_size, generations, low, high, mutation_rate, crossover_rate):
    population = initialize_population(pop_size, low, high)
    best_solution = None
    best_fitness = float('-inf')
    for generation in range(generations):
        fitness_values = [fitness(ind) for ind in population]
        max fitness = max(fitness values)
        if max_fitness > best_fitness:
            best_fitness = max_fitness
            best_solution = population[fitness_values.index(max_fitness)]
        new_population = []
        while len(new_population) < pop_size:
            parent1, parent2 = selection(population, fitness_values)
            if random.random() < crossover_rate:
                offspring1, offspring2 = crossover(parent1, parent2)
            else:
                offspring1, offspring2 = parent1, parent2
            offspring1 = mutate(offspring1, mutation_rate, low, high)
            offspring2 = mutate(offspring2, mutation_rate, low, high)
            new_population.extend([offspring1, offspring2])
        population = new_population[:pop_size]
        print(f"Generation {generation+1}: Best fitness = {best_fitness:.4f}, Best solution = {best_solution:.4f}")
    print(f"\nBest solution found: x = {best_solution:.4f}, f(x) = {best_fitness:.4f}")
population_size = 100
num generations = 50
x_range_low = -10
x_range_high = 10
mutation_rate = 0.1
crossover_rate = 0.7
genetic_algorithm(population_size, num_generations, x_range_low, x_range_high, mutation_rate, crossover_rate)
```

→ Generation 1: Best fitness = 99.2016, Best solution = 9.9600 Generation 2: Best fitness = 99.2016, Best solution = 9.9600 Generation 3: Best fitness = 99.2016, Best solution = 9.9600 Generation 4: Best fitness = 99.2016, Best solution = 9.9600 Generation 5: Best fitness = 99.2016, Best solution = 9.9600 Generation 6: Best fitness = 99.2016, Best solution = 9.9600 Generation 7: Best fitness = 99.2016, Best solution = 9.9600 Generation 8: Best fitness = 99.2016, Best solution = 9.9600 Generation 9: Best fitness = 99.2016, Best solution = 9.9600 Generation 10: Best fitness = 99.2016, Best solution = 9.9600 Generation 11: Best fitness = 99.2016, Best solution = 9.9600 Generation 12: Best fitness = 99.2016, Best solution = 9.9600 Generation 13: Best fitness = 99.2016, Best solution = 9.9600 Generation 14: Best fitness = 99.2016, Best solution = 9.9600 Generation 15: Best fitness = 99.7462, Best solution = -9.9873 Generation 16: Best fitness = 99.7462, Best solution = -9.9873 Generation 17: Best fitness = 99.7462, Best solution = -9.9873 Generation 18: Best fitness = 99.7462, Best solution = -9.9873 Generation 19: Best fitness = 99.7462, Best solution = -9.9873 Generation 20: Best fitness = 99.7462, Best solution = -9.9873 Generation 21: Best fitness = 99.7462, Best solution = -9.9873 Generation 22: Best fitness = 99.7462, Best solution = -9.9873 Generation 23: Best fitness = 99.7462, Best solution = -9.9873 Generation 24: Best fitness = 99.7462, Best solution = -9.9873 Generation 25: Best fitness = 99.7462, Best solution = -9.9873 Generation 26: Best fitness = 99.7462, Best solution = -9.9873 Generation 27: Best fitness = 99.7462, Best solution = -9.9873 Generation 28: Best fitness = 99.7462, Best solution = -9.9873 Generation 29: Best fitness = 99.7462, Best solution = -9.9873 Generation 30: Best fitness = 99.7462, Best solution = -9.9873 Generation 31: Best fitness = 99.7462, Best solution = -9.9873 Generation 32: Best fitness = 99.7462, Best solution = -9.9873 Generation 33: Best fitness = 99.7462, Best solution = -9.9873 Generation 34: Best fitness = 99.7462, Best solution = -9.9873 Generation 35: Best fitness = 99.7462, Best solution = -9.9873 Generation 36: Best fitness = 99.7462, Best solution = -9.9873 Generation 37: Best fitness = 99.7462, Best solution = -9.9873 Generation 38: Best fitness = 99.7462, Best solution = -9.9873 Generation 39: Best fitness = 99.7462, Best solution = -9.9873 Generation 40: Best fitness = 99.7462, Best solution = -9.9873 Generation 41: Best fitness = 99.7462, Best solution = -9.9873 Generation 42: Best fitness = 99.7462, Best solution = -9.9873 Generation 43: Best fitness = 99.7462, Best solution = -9.9873 Generation 44: Best fitness = 99.7462, Best solution = -9.9873 Generation 45: Best fitness = 99.7462, Best solution = -9.9873 Generation 46: Best fitness = 99.7462, Best solution = -9.9873 Generation 47: Best fitness = 99.7462, Best solution = -9.9873 Generation 48: Best fitness = 99.7462, Best solution = -9.9873 Generation 49: Best fitness = 99.7462, Best solution = -9.9873 Generation 50: Best fitness = 99.7462, Best solution = -9.9873

Best solution found: x = -9.9873, f(x) = 99.7462