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import random
def simulate_queue(
        arrival_rate,
        service_rate,
        number_of_staff,
        time_period, limit):
    11 11 11
    Simulates one run of a queue and returns the proportion of customers
    waiting over a given limit. The parameters are:
    + arrival_rate
    + service_rate
    + number_of_staff
    + time_period
    + limit
    number_of_customers = 0
    number_over_limit = 0
    server_available_dates = [0] * number_of_staff
    service_times = []
    while now < time_period:
        inter_arrival_time = random.expovariate(arrival_rate)
        now += inter_arrival_time
        number_of_customers += 1
        service_start_date = max(now, min(server_available_dates))
        service_time = random.expovariate(service_rate)
        service_end_date = service_start_date + service_time
        server_available_dates.append(service_end_date)
        server_available_dates.sort()
        server_available_dates = server_available_dates[-number_of_staff:]
        wait = service_start_date - now
        if wait > limit:
            number_over_limit += 1
    return number_over_limit / number_of_customers
def get_proportion_waiting_over_limit(
    arrival_rate=1.5,
    service_rate=0.15,
    number_of_staff=10,
    limit=0.5,
    time_period=31*24,
    number_of_repetitions=100):
    11 11 11
    Gives the average proportion of customers waiting over a given limit,
    over number_of_repetitions repetitions. The parameters are:
    + arrival_rate
    + service_rate
    + number_of_staff
    + time_period
    + limit
    + number_of_repetitions
    proportions = []
    for repetition in range(number_of_repetitions):
        proportions.append(
            simulate_queue(
                arrival_rate=arrival_rate,
                service_rate=service_rate,
                number_of_staff=number_of_staff,
```

limit=limit,

time_period=time_period))

return sum(proportions) / len(proportions)