Lab 5
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1. Token Bucket: Tokens fall at constant rate, r, into the bucket. The bucket can hold a certain number of maximum tokens known as its capacity. If we try to fill more than the capacity, the rest of the tokens would be discarded. When a packet arrives, it sees if the bucket contains the required number of tokens or not. If it contains, then the packet absorbs the tokens equal to its length and finishes its execution, else it absorbs whatever is available, and waits until it gets the required number of tokens.

Initially the curr_token_count= capacity, i.e. the bucket is full. prev_time=0, i.e. we are starting at time 0.
The function counting_curr_token is calculating the number of tokens at the current time when the packet has arrived. Extra_required variable stores the extra tokens that would be required by the packet. The we check if the extra_tokens is positive or negative, i.e. bucket contains sufficient tokens or not. If it contains, then the curr_token_count decreases and curr_time is the exit time of the current packet. Otherwise it has to wait for “extra_required/rate” more time.