

1. Write a simple producer/consumer program using Pthread and condition variables. Here assume producers are negotiable securities that generate stock prices including their names, prices, and times of updates. The producers also inform the consumers, financial instruments, when prices are changed. The consumers take data and generate average values. Use at least two producers and two consumers.
2. Write a Pthread program to find the roots of the quadratic equation $ax^2 + bx + c = 0$, using the formula
$$x = (-b \pm \sqrt{b^2 - 4ac}) / 2a$$
where intermediate values are computed by different threads (at least three thread).