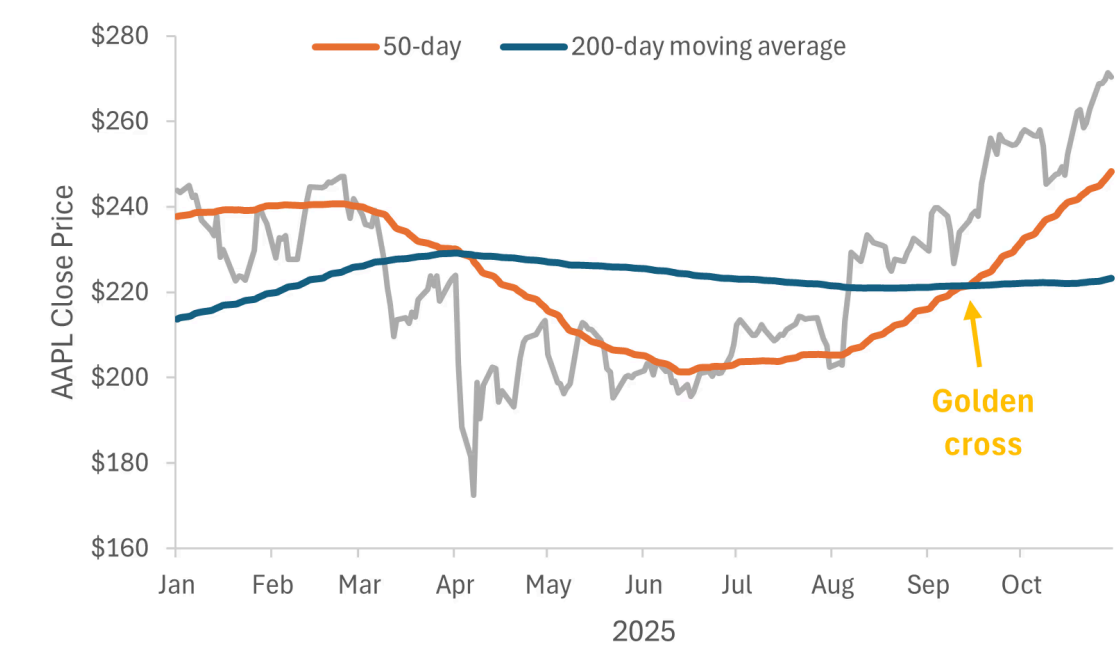


Turning Bullish

Your Objective

Your dataset for this drill contains daily closing prices for the **SPDR S&P 500 ETF Trust (SPY)** over the last 5 years.

Your task is to calculate the 50-day and 200-day moving averages based on the closing price, and identify every “Golden Cross” moment – **when the short-term average (50-day) crosses from below to above the long-term average (200-day)** – signaling a potential bull market.



To complete the drill, create a table containing the date, close price, and three new columns:

- 1. **50-day moving average:** The average closing price for the last 50 trading days, calculated for each date
- 2. **200-day moving average:** The average closing price for the last 200 trading days, calculated for each date
- 3. **Golden Cross:** A binary field (1/0) that equals 1 only on the exact date when the 50-day average crosses from below the 200-day average; otherwise 0

| (new columns) | | | | |
|---------------|-------------|------------|-------------|--------------|
| Date | Close Price | 50-Day Avg | 200-Day Avg | Golden Cross |
| 2025-09-08 | \$237.88 | \$219.15 | \$221.46 | 0 |
| 2025-09-09 | \$234.35 | \$219.82 | \$221.49 | 0 |
| 2025-09-10 | \$226.79 | \$220.25 | \$221.48 | 0 |
| 2025-09-11 | \$230.03 | \$220.69 | \$221.49 | 0 |
| 2025-09-12 | \$234.07 | \$221.13 | \$221.52 | 0 |
| 2025-09-15 | \$236.70 | \$221.59 | \$221.55 | 1 |
| 2025-09-16 | \$238.15 | \$222.15 | \$221.58 | 0 |
| 2025-09-17 | \$238.99 | \$222.73 | \$221.60 | 0 |
| 2025-09-18 | \$237.88 | \$223.27 | \$221.61 | 0 |
| 2025-09-19 | \$245.50 | \$223.93 | \$221.65 | 0 |
| 2025-09-22 | \$256.08 | \$224.83 | \$221.74 | 0 |

50-day is lower than 200-day average

50-day is now higher (Golden Cross!)

