Relative strength index

$$100 - \frac{100}{1 + \frac{\frac{1}{k}\sum_{i=n-k+1}^{n} x_i}{\frac{1}{k}\sum_{i=n-k+1}^{n} x_i}}$$

```
gains = []
losses = []
rsi_values = []

for i in range(len(prices)):
    if i == 0:
        gains.append(0)
        losses.append(0)
    else:
        difference = prices[i] - prices[i - 1]
        if difference > 0:
            gains.append(difference)
            losses.append(0)
        else:
            gains.append(0)
            losses.append(abs(difference))

avg_gains = []
avg_losses = []

for i in range(len(gains)):
    if i < period - 1:
        avg_gains.append(0)
        avg_losses.append(0)
    else:
        avg_gain = sum(gains[i - period + 1:i + 1]) / period
        avg_loss = sum(losses[i - period + 1:i + 1]) / period
        avg_gains.append(avg_gain)
        avg_losses.append(avg_loss)

for i in range(len(avg_gains)):
    if avg_loss == 0:
        rsi = 100
    else:
        rs = avg_gains[i] / avg_losses[i]
        rsi = 100 - (100 / (1 + rs))
    rsi_values.append(rsi)
```

```
    return rsi_values
```