Time Series

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EXERCISE 4.4.1 Create a times series object starting at 1990 with value 100 and ending in 2000 in which for each even month, the value increases with 2% the previous month, and each odd month decreases with 1%. What is the final value?

```
Value <- 100
Stored_values <- c()

# 132 the number of months from 1990 to 2000 (11 (years) * 12 (months in a year))
for(x in 1:132){
  if (x%%2 == 1){ #If the value is odd
    Value = Value*(1.0 - 0.01) #Value decreases by 1%
  }
  else { #else (for the even values)
    Value = Value*(1.0 + 0.02) #Value is increases by 2%
  }
  Stored_values <- c(Stored_values, Value)
}

Month <- ts(data = Stored_values, start = 1990, frequency = 12)
Month
```

```
##           Jan      Feb      Mar      Apr      May      Jun      Jul      Aug
## 1990  99.0000 100.9800  99.9702 101.9696 100.9499 102.9689 101.9392 103.9780
## 1991 104.9657 107.0650 105.9944 108.1142 107.0331 109.1738 108.0820 110.2437
## 1992 111.2909 113.5167 112.3815 114.6292 113.4829 115.7525 114.5950 116.8869
## 1993 117.9972 120.3572 119.1536 121.5367 120.3213 122.7277 121.5005 123.9305
## 1994 125.1077 127.6098 126.3337 128.8604 127.5718 130.1232 128.8220 131.3985
## 1995 132.6466 135.2996 133.9466 136.6255 135.2592 137.9644 136.5848 139.3165
## 1996 140.6398 143.4526 142.0181 144.8585 143.4099 146.2781 144.8153 147.7116
## 1997 149.1147 152.0970 150.5761 153.5876 152.0517 155.0927 153.5418 156.6127
## 1998 158.1003 161.2623 159.6497 162.8427 161.2143 164.4386 162.7942 166.0501
## 1999 167.6274 170.9799 169.2701 172.6555 170.9290 174.3476 172.6041 176.0562
## 2000 177.7285 181.2831 179.4703 183.0597 181.2291 184.8537 183.0051 186.6652
##           Sep      Oct      Nov      Dec
## 1990 102.9382 104.9970 103.9470 106.0260
## 1991 109.1412 111.3241 110.2108 112.4150
## 1992 115.7180 118.0324 116.8521 119.1891
## 1993 122.6912 125.1450 123.8935 126.3714
## 1994 130.0845 132.6862 131.3593 133.9865
## 1995 137.9233 140.6818 139.2750 142.0605
## 1996 146.2345 149.1592 147.6676 150.6210
## 1997 155.0465 158.1475 156.5660 159.6973
## 1998 164.3896 167.6774 166.0006 169.3206
## 1999 174.2956 177.7815 176.0037 179.5238
## 2000 184.7986 188.4946 186.6096 190.3418
```