Practice

If you restarted your SAS session, open and submit the **libname.sas** program in the course files.

Level 1

1. Using Nested Iterative DO Loops (DATA Step with No SET Statement)

Determine the value of a retirement account after six years based on an annual investment of $10,000 and a constant annual interest rate of 7.5%.

a. Open **p206p01.sas** from the **practices** folder. Add an iterative DO loop around the sum statement for **Invest**.

1) Add a DO statement that creates the column **Year** with values ranging from 1 to 6.

2) Add an OUTPUT statement to show the value of the retirement account for each year.

3) Add an END statement.

b. Run the program and review the results.

Retirement Account Balance per Year

Year	Invest
1	$10,000.00
2	$20,000.00
3	$30,000.00
4	$40,000.00
5	$50,000.00
6	$60,000.00

c. Add an inner iterative DO loop between the sum statement and the OUTPUT statement to include the accrued quarterly compounded interest based on an annual interest rate of 7.5%.

1) Add a DO statement that creates the column **Quarter** with values ranging from 1 to 4.

2) Add a sum statement to add the accrued interest to the **Invest** value.

```
Invest+(Invest*(.075/4));
```

3) Add an END statement.

d. Run the program and review the results.

Retirement Account Balance per Year

Year	Invest	Quarter
1	$10,771.36	5
2	$22,373.58	5
3	$34,870.74	5
4	$48,331.88	5
5	$62,831.36	5
6	$78,449.27	5

e. Drop the **Quarter** column. Run the program and review the results.

Retirement Account Balance per Year

Year	Invest
1	$10,771.36
2	$22,373.58
3	$34,870.74
4	$48,331.88
5	$62,831.36
6	$78,449.27

Level 2

2. Using an Iterative DO Loop (DATA Step with a SET Statement)

The **pg2.np_summary** table contains public use statistics from the National Park Service. The Pacific West region is anticipating the number of recreational day visitors to increase yearly by 5% for national monuments and 8% for national parks. Show the forecasted number of recreational day visitors for each park for the next five years.

a. Open **p206p02.sas** from the **practices** folder. Run the program and review the results. Notice that the initial program is showing the forecasted value for the next year. The next year is based on adding one year to the year value of today's date. Depending on the current date, your **NextYear** value might be bigger than the **NextYear** value in the following results.

Forecast of Recreational Day Visitors for Pacific West

Obs	ParkName	Recreational Day Visitors	Forecasted Recreational Day Visitors	NextYear
1	Cabrillo National Monument	959,145	1,007,102	2019
2	Channel Islands National Park	364,807	393,992	2019
3	Crater Lake National Park	756,344	816,852	2019
4	Death Valley National Park	1,296,283	1,399,986	2019
5	Devils Postpile National Monument	135,404	142,174	2019
6	Great Basin National Park	144,846	156,434	2019

b. Add an iterative DO loop around the conditional IF-THEN statements.

1) The DO loop needs to iterate five times.

2) In the DO statement, a new column named **Year** needs to be created that starts at the value of **NextYear** and stops at the value of **NextYear** plus 4.

3) A row needs to be created for each year.

c. Modify the KEEP statement to keep the column **Year** instead of **NextYear**.

d. Run the program and review the results.

Obs	ParkName	Recreational Day Visitors	Forecasted Recreational Day Visitors	Year
1	Cabrillo National Monument	959,145	1,007,102	2019
2	Cabrillo National Monument	959,145	1,057,457	2020
3	Cabrillo National Monument	959,145	1,110,330	2021
4	Cabrillo National Monument	959,145	1,165,847	2022
5	Cabrillo National Monument	959,145	1,224,139	2023
6	Channel Islands National Park	364,807	393,992	2019

e. (Optional) Modify the OUTPUT statement to be a conditional statement that outputs only on the fifth iteration. Run the program and review the results.

Obs	ParkName	Recreational Day Visitors	Forecasted Recreational Day Visitors	Year
1	Cabrillo National Monument	959,145	1,224,139	2023
2	Channel Islands National Park	364,807	536,021	2023
3	Crater Lake National Park	756,344	1,111,317	2023
4	Death Valley National Park	1,296,283	1,904,665	2023
5	Devils Postpile National Monument	135,404	172,814	2023

Challenge

3. Using an Iterative DO Loop with a List of Values

The **sashelp.class** table contains student information such as age, height, and weight. For the female 13-year old students, show the student's projected weight over the next four quarters, assuming a four-pound increase per quarter.

a. Open **p206p03.sas** from the **practices** folder.

b. Add a DO loop to the DATA step to produce the following results. The **Weight** value is increasing by four pounds per quarter.

Projected Weight for Females (Age 13)

Obs	Name	Weight	Quarter
1	Alice	88	1
2	Alice	92	2
3	Alice	96	3
4	Alice	100	4
5	Barbara	102	1
6	Barbara	106	2
7	Barbara	110	3
8	Barbara	114	4

c. Modify the DO statement to produce the following results. The DO statement will now be based on a list of values instead of a value that is incremented.

Projected Weight for Females (Age 13)

Obs	Name	Weight	Quarter
1	Alice	88	1st Qtr
2	Alice	92	2nd Qtr
3	Alice	96	3rd Qtr
4	Alice	100	4th Qtr
5	Barbara	102	1st Qtr
6	Barbara	106	2nd Qtr
7	Barbara	110	3rd Qtr
8	Barbara	114	4th Qtr

End of Practices