

## Project 1

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**Project Name:** Adventure Works Product Sales Analysis

**Max. no. of students in a group:** 4 students

**Dataset:** AdventureWorks.xlsx (Available on Blackboard)

### Requirements:

Below are bare minimum requirements for this project, however, you are free to add more features to your project:

#### 1. Data Import

- This phase requires you to import the data from the provided excel file into SAS using Proc Import.
  - Product sheet in excel file should be imported as Product dataset in SAS.
  - SalesOrderDetail sheet in excel file should be imported as SalesOrderDetail dataset in SAS.

#### 2. Data Cleaning

- This phase requires you to clean your data before data analysis phase.
  - Product\_Clean:
    - Create a Product\_Clean dataset from Product dataset by bringing in only ProductID, Name, ProductNumber, Color and ListPrice
    - All the missing values in Color column should be replaced by 'NA'
    - ListPrice column should be numeric (final column name should be ListPrice) and format should have a dollar sign with 2 decimal places
    - No un-necessary columns should be part of the Product\_Clean dataset. Please see below expected output.

Table: WORKPRODUCT_CLEAN		View: Column names		Filter: (none)
Columns		Total rows: 504 Total columns: 5		
		ProductID	Name	ProductNumber
	1	1	Adjustable Race	AR-5381
	2	2	Bearing Ball	BA-8327
	3	3	BB Ball Bearing	BE-2349
	4	316	Blade	BL-2036
	5	317	LL Crankarm	CA-5965
	6	318	ML Crankarm	CA-6738

#### ▪ SalesOrderDetail\_Clean:

- Create SalesOrderDetail\_Clean dataset from SalesOrderDetail dataset by bringing in only SalesOrderID SalesOrderDetailID OrderQty ProductID UnitPrice LineTotal and ModifiedDate

- ModifiedDate should be numeric with column name ModifiedDate
- UnitPrice should be numeric with column name UnitPrice
- LineTotal should be numeric with column name LineTotal
- OrderQty should be numeric with column name OrderQty
- Include date for year 2013 and 2014 in ModifiedDate only
- ModifiedDate should be mmddyy10. Format
- UnitPrice and LineTotal should have a dollar with 2 decimal places
- No un-necessary columns should be part of the SalesOrderDetail\_Clean dataset. Please see expected output below:

Table: WORK.SALESORDERDETAIL\_CLEAN | View: Column names | Filter: (none)

Columns	Total rows: 93912 Total columns: 7
<input checked="" type="checkbox"/> Select all	
<input checked="" type="checkbox"/> SalesOrderID	1 49464 27765
<input checked="" type="checkbox"/> SalesOrderDetailID	2 49473 27871
<input checked="" type="checkbox"/> ProductID	3 49479 27910
<input checked="" type="checkbox"/> ModifiedDate	4 49481 27996
<input checked="" type="checkbox"/> UnitPrice	5 49484 28036
<input checked="" type="checkbox"/> LineTotal	6 49490 28160
<input checked="" type="checkbox"/> OrderQty	7 49498 28289
	8 49501 28369
	ProductID ModifiedDate UnitPrice LineTotal OrderQty
	\$20.19 \$80.75 4
	\$20.19 \$60.56 3
	\$20.19 \$60.56 3
	\$20.19 \$121.12 6
	\$20.19 \$40.37 2
	\$20.19 \$201.87 10
	\$20.19 \$20.19 1
	\$20.19 \$100.93 5

### 3. Joining and Merging

- This phase requires you to join / merge your datasets to create a dataset for analysis.
  - SalesDetails:
    - Create a SalesDetails dataset by joining SalesOrderDetail\_Clean and Product\_Clean datasets
    - Use ProductID column for joining the tables
    - SalesDetails table should contain all the observations from SalesOrderDetail\_Clean table along with columns from Product\_Clean
    - Drop SalesOrderID SalesOrderDetailID ProductNumber and ListPrice from the result dataset. Please see expected output below:

Table: WORK.SALESDETAILS | View: Column names | Filter: (none)

Columns	Total rows: 93912 Total columns: 7
<input checked="" type="checkbox"/> Select all	
<input checked="" type="checkbox"/> ProductID	1 707 01/28/2013
<input checked="" type="checkbox"/> ModifiedDate	2 707 01/28/2013
<input checked="" type="checkbox"/> UnitPrice	3 707 01/28/2013
<input checked="" type="checkbox"/> LineTotal	4 707 01/28/2013
<input checked="" type="checkbox"/> OrderQty	5 707 01/28/2013
<input checked="" type="checkbox"/> Name	6 707 01/28/2013
<input checked="" type="checkbox"/> Color	7 707 01/28/2013
	8 707 01/28/2013
	ProductID ModifiedDate UnitPrice LineTotal OrderQty Name Color
	\$20.19 \$80.75 4 Sport-100 Helmet, Red Red
	\$20.19 \$60.56 3 Sport-100 Helmet, Red Red
	\$20.19 \$60.56 3 Sport-100 Helmet, Red Red
	\$20.19 \$121.12 6 Sport-100 Helmet, Red Red
	\$20.19 \$40.37 2 Sport-100 Helmet, Red Red
	\$20.19 \$201.87 10 Sport-100 Helmet, Red Red
	\$20.19 \$20.19 1 Sport-100 Helmet, Red Red
	\$20.19 \$100.93 5 Sport-100 Helmet, Red Red

### ▪ SalesAnalysis:

- Create a SalesAnalysis dataset from SalesDetails dataset that groups all the products by ProductID (hint: research on obtaining a total for each by group in SAS)

- Create SubTotal and SubOrderQty columns in SalesAnalysis that provides an aggregate sum and quantity of each product by its ProductID.
- SubTotal column should have a dollar and 2 decimal places.
- Please see below expected output:

Table: WORKSALESANALYSIS | View: Column names | Filter: {none}

Columns	Total rows: 238	Total columns: 8						
	ProductID	ModifiedDate	UnitPrice	LineTotal	OrderQty	Name	Color	SubTotal
<input checked="" type="checkbox"/> Select all	1 707	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Red	Red	\$126,263.88
<input checked="" type="checkbox"/> ProductID	2 708	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Black	Black	\$126,940.27
<input checked="" type="checkbox"/> ModifiedDate	3 711	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Blue	Blue	\$126,596.20
<input checked="" type="checkbox"/> UnitPrice	4 712	06/30/2014	\$8.99	\$8.99	1	AWC Logo Cap	Multi	\$38,013.93
<input checked="" type="checkbox"/> LineTotal	5 713	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, S	Multi	\$21,485.71
<input checked="" type="checkbox"/> OrderQty	6 714	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, M	Multi	\$77,087.41
<input checked="" type="checkbox"/> Name	7 715	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, L	Multi	\$123,614.75
<input checked="" type="checkbox"/> Color	8 716	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, XL	Multi	\$58,127.87
<input checked="" type="checkbox"/> SubTotal	9 717	05/01/2014	\$858.90	\$1,717.80	2	HL Road Frame - Red, 62	Red	\$219,253.75

#### 4. Data Analysis

- This phase requires you to analyze the SalesAnalysis for Adventure Works and answer the following 5 questions by generating reports using Proc Print for each of the 5 questions:
  - How many Red color Helmets are sold in 2013 and 2014?
  - How many items sold in 2013 and 2014 have a Multi color?
  - What is the combined Sales total for all the helmets sold in 2013 and 2014?
  - How many Yellow Color Touring-1000 where sold in 2013 and 2014?
  - What was the total sales in 2013 and 2014?
- Create at least one chart in SAS for any analysis of your choice from SalesAnalysis dataset (this analysis can be of your choice and not necessarily from above 5 questions.)

#### 5. Project Report

- This phase requires you to create a report in MS Word with the following requirements:
  - Explain each and every phase of the project (from Phase 1 to 4) along with the screenshots of the output and the related SAS code
  - Include answers to questions in Phase 4 in your report along with the chart you have chosen to create along with its justification
  - Make sure not to miss any phase and output of its screenshot

## Solution

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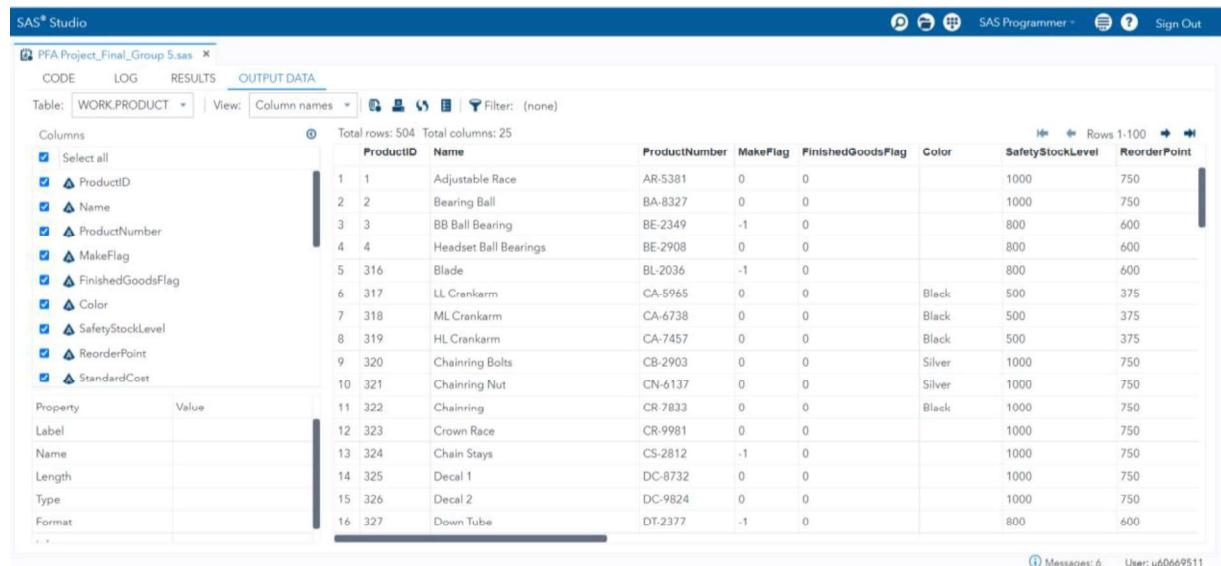
### 1. Data Import

- This phase requires you to import the data from the provided excel file into SAS using Proc Import.
  - Product sheet in excel file should be imported as Product dataset in SAS.

#### Code:

```
proc import file="/home/u60669511/BAN130ZCC/AdventureWorks.xlsx"
  out=Product
  dbms=xlsx
  replace;
  sheet="Product";
run;
```

#### Output:



The screenshot shows the SAS Studio interface with the 'PFA Project\_Final\_Group 5.sas' file open. The 'OUTPUT DATA' tab is selected, displaying the 'WORK.PRODUCT' table. The table has 504 rows and 25 columns. The columns are: ProductID, Name, ProductNumber, MakeFlag, FinishedGoodsFlag, Color, SafetyStockLevel, and ReorderPoint. The data includes various product names like Adjustable Race, Bearing Ball, BB Ball Bearing, Headset Ball Bearings, Blade, LL Crankarm, ML Crankarm, HL Crankarm, Chainring Bolts, Chainring Nut, Chainring, Crown Race, Chain Stays, Decal 1, Decal 2, and Down Tube, along with their respective codes and flags.

ProductID	Name	ProductNumber	MakeFlag	FinishedGoodsFlag	Color	SafetyStockLevel	ReorderPoint
1	Adjustable Race	AR-5381	0	0		1000	750
2	Bearing Ball	BA-8327	0	0		1000	750
3	BB Ball Bearing	BE-2349	-1	0		800	600
4	Headset Ball Bearings	BE-2908	0	0		800	600
5	Blade	BL-2036	-1	0		800	600
6	LL Crankarm	CA-5965	0	0	Black	500	375
7	ML Crankarm	CA-6738	0	0	Black	500	375
8	HL Crankarm	CA-7457	0	0	Black	500	375
9	Chainring Bolts	CB-2903	0	0	Silver	1000	750
10	Chainring Nut	CN-6137	0	0	Silver	1000	750
11	Chainring	CR-7833	0	0	Black	1000	750
12	Crown Race	CR-9981	0	0		1000	750
13	Chain Stays	CS-2812	-1	0		1000	750
14	Decal 1	DC-8732	0	0		1000	750
15	Decal 2	DC-9824	0	0		1000	750
16	Down Tube	DT-2377	-1	0		800	600

- SalesOrderDetail sheet in excel file should be imported as SalesOrderDetail dataset in SAS.

#### Code:

```

proc import file="/home/u60669511/BAN130ZCC/AdventureWorks.xlsx"
  out=SalesOrderDetail
  dbms=xlsx
  replace;
  sheet="SalesOrderDetail";
run;

```

## Output:

	SalesOrderID	SalesOrderDetailID	CarrierTrackingNumber	OrderQty	ProductID	SpecialOfferID	UnitPrice	UnitPriceDiscount	LineTotal
1	43659	1	4911-403C-98	1	776	1	2024.994	0	2024.994
2	43659	2	4911-403C-98	3	777	1	2024.994	0	6074.982
3	43659	3	4911-403C-98	1	778	1	2024.994	0	2024.994
4	43659	4	4911-403C-98	1	771	1	2039.994	0	2039.994
5	43659	5	4911-403C-98	1	772	1	2039.994	0	2039.994
6	43659	6	4911-403C-98	2	773	1	2039.994	0	4079.984
7	43659	7	4911-403C-98	1	774	1	2039.994	0	2039.994
8	43659	8	4911-403C-98	3	714	1	28.8404	0	86.5212€
9	43659	9	4911-403C-98	1	716	1	28.8404	0	28.8404€
10	43659	10	4911-403C-98	6	709	1	5.7	0	34.2000€
11	43659	11	4911-403C-98	2	712	1	5.1865	0	10.3730€
12	43659	12	4911-403C-98	4	711	1	20.1865	0	80.7460€
13	43660	13	6431-4D57-83	1	762	1	419.4589	0	419.4585
14	43660	14	6431-4D57-83	1	758	1	874.794	0	874.794€
15	43661	15	4E0A-4F89-AE	1	745	1	809.76	0	809.760€
16	43661	16	4E0A-4F89-AE	1	743	1	714.7043	0	714.704€

## 2. Data Cleaning

- This phase requires you to clean your data before data analysis phase.
  - Product\_Clean:**
    - Create a Product\_Clean dataset from Product dataset by bringing in only ProductID, Name, ProductNumber, Color and ListPrice
    - All the missing values in Color column should be replaced by 'NA'
    - ListPrice column should be numeric (final column name should be ListPrice) and format should have a dollar sign with 2 decimal places
    - No un-necessary columns should be part of the Product\_Clean dataset. Please see below expected output.

Table: WORK.PRODUCT\_CLEAN | View: Column names | Filter: (none)

Columns

- Select all
- ProductID
- Name
- ProductNumber
- Color
- ListPrice

Total rows: 504 Total columns: 5

	ProductID	Name	ProductNumber	Color	ListPrice
1	1	Adjustable Race	AR-5381	NA	\$0.00
2	2	Bearing Ball	BA-8327	NA	\$0.00
3	3	BB Ball Bearing	BE-2349	NA	\$0.00
4	316	Blade	BL-2036	NA	\$0.00
5	317	LL Crankarm	CA-5965	Black	\$0.00
6	318	ML Crankarm	CA-6738	Black	\$0.00

## Code:

```
data Product_clean;

set Product (keep = ProductID Name ProductNumber Color ListPrice);

if missing(color) then color = "NA";

ListPricenew = input(ListPrice, 7.);

Format ListPriceNew dollar8.2;

Drop ListPrice;

rename ListPriceNew = ListPrice;

run;
```

## Output:

SAS® Studio

PFA Project\_Final\_Group 5.sas

CODE LOG RESULTS OUTPUT DATA

Table: WORK.PRODUCT\_CLEAN | View: Column names | Filter: (none)

Columns

- Select all
- ProductID
- Name
- ProductNumber
- Color
- ListPrice

Total rows: 504 Total columns: 5

	ProductID	Name	ProductNumber	Color	ListPrice
1	1	Adjustable Race	AR-5381	NA	\$0.00
2	2	Bearing Ball	BA-8327	NA	\$0.00
3	3	BB Ball Bearing	BE-2349	NA	\$0.00
4	4	Headset Ball Bearings	BE-2908	NA	\$0.00
5	316	Blade	BL-2036	NA	\$0.00
6	317	LL Crankarm	CA-5965	Black	\$0.00
7	318	ML Crankarm	CA-6738	Black	\$0.00
8	319	HL Crankarm	CA-7457	Black	\$0.00
9	320	Chainring Bolts	CB-2903	Silver	\$0.00
10	321	Chainring Nut	CN-6137	Silver	\$0.00
11	322	Chainring	CR-7833	Black	\$0.00
12	323	Crown Race	CR-9981	NA	\$0.00
13	324	Chain Stays	CS-2812	NA	\$0.00
14	325	Decal 1	DC-8732	NA	\$0.00
15	326	Decal 2	DC-9824	NA	\$0.00
16	327	Down Tube	DT-2377	NA	\$0.00

Property Value

Label	
Name	
Length	
Type	
Format	

Rows 1-100

Messages: 9 User: u60669511

## ▪ SalesOrderDetail\_Clean:

- Create SalesOrderDetail\_Clean dataset from SalesOrderDetail dataset by bringing in only SalesOrderID SalesOrderDetailID OrderQty ProductID UnitPrice LineTotal and ModifiedDate
- ModifiedDate should be numeric with column name ModifiedDate
- UnitPrice should be numeric with column name UnitPrice
- LineTotal should be numeric with column name LineTotal
- OrderQty should be numeric with column name OrderQty
- Include date for year 2013 and 2014 in ModifiedDate only
- ModifiedDate should be mmddyy10. Format
- UnitPrice and LineTotal should have a dollar with 2 decimal places
- No un-necessary columns should be part of the SalesOrderDetail\_Clean dataset. Please see expected output below:

Table: WORK.SALESORDERDETAIL\_CLEAN | View: Column names | Filter: (none)

Columns	Total rows: 93912 Total columns: 7
<input checked="" type="checkbox"/> Select all	
<input checked="" type="checkbox"/> SalesOrderID	1 49464 27765 707 01/28/2013 \$20.19 \$80.75 4
<input checked="" type="checkbox"/> SalesOrderDetailID	2 49473 27871 707 01/28/2013 \$20.19 \$60.56 3
<input checked="" type="checkbox"/> ProductID	3 49479 27910 707 01/28/2013 \$20.19 \$60.56 3
<input checked="" type="checkbox"/> ModifiedDate	4 49481 27996 707 01/28/2013 \$20.19 \$121.12 6
<input checked="" type="checkbox"/> UnitPrice	5 49484 28036 707 01/28/2013 \$20.19 \$40.37 2
<input checked="" type="checkbox"/> LineTotal	6 49490 28160 707 01/28/2013 \$20.19 \$201.87 10
<input checked="" type="checkbox"/> OrderQty	7 49498 28289 707 01/28/2013 \$20.19 \$20.19 1
	8 49501 28369 707 01/28/2013 \$20.19 \$100.93 5

## Code:

```

data SalesOrderDetail_Clean;

set SalesOrderDetail (Keep= SalesOrderID SalesOrderDetailID OrderQty ProductID UnitPrice
LineTotal ModifiedDate);

ModifiedDatenew = input(ModifiedDate ,YYMMDD19.);

UnitPricenew   = input(UnitPrice,9. );

LineTotalnew   = input(LineTotal, 12.);

OrderQtynew    = input(OrderQty,2.);

year          = year(ModifiedDatenew);

if year IN (2013,2014);

Format ModifiedDatenew mmddyy10. UnitPricenew dollar11.2 LineTotalnew dollar14.2;

```

```

Drop ModifiedDate UnitPrice LineTotal OrderQty Year;
rename ModifiedDatenew = ModifiedDate
  UnitPricenew = UnitPrice
  LineTotalnew = Linetotal
  OrderQtynew = OrderQty;
run;

```

## Output:

SAS® Studio

PFA Project\_Final\_Group 5.sas

CODE LOG RESULTS OUTPUT DATA

Table: WORK.SALESORDERDETAIL\_CLEAN

Total rows: 93912 Total columns: 7

	SalesOrderID	SalesOrderDetailID	ProductID	ModifiedDate	UnitPrice	Linetotal	OrderQty
1	49181	27406	794	01/01/2013	\$2,181.56	\$2,181.56	1
2	49182	27407	790	01/01/2013	\$2,443.35	\$2,443.35	1
3	49183	27408	791	01/01/2013	\$2,443.35	\$2,443.35	1
4	49184	27409	784	01/01/2013	\$2,049.10	\$2,049.10	1
5	49185	27410	784	01/01/2013	\$2,049.10	\$2,049.10	1
6	49186	27411	791	01/01/2013	\$2,443.35	\$2,443.35	1
7	49187	27412	796	01/01/2013	\$2,181.56	\$2,181.56	1
8	49188	27413	782	01/01/2013	\$2,049.10	\$2,049.10	1
9	49189	27414	769	01/01/2013	\$782.99	\$782.99	1
10	49190	27415	798	01/01/2013	\$1,000.44	\$1,000.44	1
11	49191	27416	800	01/02/2013	\$1,000.44	\$1,000.44	1
12	49192	27417	800	01/02/2013	\$1,000.44	\$1,000.44	1
13	49193	27418	783	01/02/2013	\$2,049.10	\$2,049.10	1
14	49194	27419	766	01/02/2013	\$782.99	\$782.99	1
15	49195	27420	759	01/02/2013	\$782.99	\$782.99	1
16	49196	27421	780	01/02/2013	\$2,071.42	\$2,071.42	1

Messages: 12 User: u60669511

### 3. Joining and Merging

- This phase requires you to join / merge your datasets to create a dataset for analysis.
  - SalesDetails:**
    - Create a SalesDetails dataset by joining SalesOrderDetail\_Clean and Product\_Clean datasets
    - Use ProductID column for joining the tables
    - SalesDetails table should contain all the observations from SalesOrderDetail\_Clean table along with columns from Product\_Clean
    - Drop SalesOrderID SalesOrderDetailID ProductNumber and ListPrice from the result dataset. Please see expected output below:

Table: WORK.SALESDETAILS | View: Column names | Filter: (none)

ProductID	ModifiedDate	UnitPrice	LineTotal	OrderQty	Name	Color
1	707	01/28/2013	\$20.19	\$80.75	4	Sport-100 Helmet, Red Red
2	707	01/28/2013	\$20.19	\$60.56	3	Sport-100 Helmet, Red Red
3	707	01/28/2013	\$20.19	\$60.56	3	Sport-100 Helmet, Red Red
4	707	01/28/2013	\$20.19	\$121.12	6	Sport-100 Helmet, Red Red
5	707	01/28/2013	\$20.19	\$40.37	2	Sport-100 Helmet, Red Red
6	707	01/28/2013	\$20.19	\$201.87	10	Sport-100 Helmet, Red Red
7	707	01/28/2013	\$20.19	\$20.19	1	Sport-100 Helmet, Red Red
8	707	01/28/2013	\$20.19	\$100.93	5	Sport-100 Helmet, Red Red

## Code:

```
proc sort data = SalesOrderDetail_Clean out = SalesOrderDetail_Cleansorted;
  by ProductID;
run;
```

```
proc sort data = Product_clean out = Product_cleansorted;
  by ProductID;
run;
```

```
data SalesDetails;
  merge SalesOrderDetail_Cleansorted (IN= in1)
    Product_cleansorted (IN= in2);
  by ProductID;
  if in1 = 1 and in2 = 1;
  Drop SalesOrderID SalesOrderDetailID ProductNumber ListPrice;
```

```
run;
Proc sort data = SalesDetails out = SalesDetails1;
  by ProductID;
run;
```

## Output:

SAS® Studio

PFA Project\_Final\_Group 5.sas X

CODE LOG RESULTS OUTPUT DATA

Table: WORK.SALESORDERDETAIL\_CLEANSORTED ▾ View: Column names Filter: (none)

Columns

- Select all
- SalesOrderID
- SalesOrderDetailID
- ProductID
- ModifiedDate
- UnitPrice
- Linetotal
- OrderQty

Total rows: 93912 Total columns: 7

	SalesOrderID	SalesOrderDetailID	ProductID	ModifiedDate	UnitPrice	Linetotal	OrderQty
1	49464	27765	707	01/28/2013	\$20.19	\$80.75	4
2	49473	27871	707	01/28/2013	\$20.19	\$60.56	3
3	49479	27910	707	01/28/2013	\$20.19	\$60.56	3
4	49481	27996	707	01/28/2013	\$20.19	\$121.12	6
5	49484	28036	707	01/28/2013	\$20.19	\$40.37	2
6	49490	28160	707	01/28/2013	\$20.19	\$201.87	10
7	49498	28289	707	01/28/2013	\$20.19	\$20.19	1
8	49501	28369	707	01/28/2013	\$20.19	\$100.93	5
9	49503	28397	707	01/28/2013	\$20.19	\$20.19	1
10	49518	28567	707	01/28/2013	\$20.19	\$100.93	5
11	49523	28671	707	01/28/2013	\$20.19	\$40.37	2
12	49538	28777	707	01/28/2013	\$20.19	\$60.56	3
13	49822	29216	707	02/28/2013	\$20.19	\$100.93	5
14	49826	29296	707	02/28/2013	\$20.19	\$60.56	3
15	49827	29304	707	02/28/2013	\$20.19	\$80.75	4
16	49828	29359	707	02/28/2013	\$20.19	\$60.56	3

Property Value

Label

Name

Length

Type

Format

Messages: 8 User: u60669511

## ▪ SalesAnalysis:

- Create a SalesAnalysis dataset from SalesDetails dataset that groups all the products by ProductID (hint: research on obtaining a total for each by group in SAS)
- Create SubTotal and SubOrderQty columns in SalesAnalysis that provides an aggregate sum and quantity of each product by its ProductID.
- SubTotal column should have a dollar and 2 decimal places.
- Please see below expected output:

Table: WORKSALESANALYSIS ▾ View: Column names Filter: (none)

Columns

- Select all
- ProductID
- ModifiedDate
- UnitPrice
- LineTotal
- OrderQty
- Name
- Color
- SubTotal

Total rows: 238 Total columns: 8

	ProductID	ModifiedDate	UnitPrice	LineTotal	OrderQty	Name	Color	SubTotal
1	707	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Red	Red	\$126,263.88
2	708	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Black	Black	\$126,940.27
3	711	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Blue	Blue	\$126,596.20
4	712	06/30/2014	\$8.99	\$8.99	1	AWC Logo Cap	Multi	\$38,013.93
5	713	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, S	Multi	\$21,445.71
6	714	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, M	Multi	\$77,087.41
7	715	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, L	Multi	\$123,614.75
8	716	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, XL	Multi	\$58,127.87
9	717	05/01/2014	\$858.90	\$1,717.80	2	HL Road Frame - Red, 62	Red	\$219,253.75

## Code:

```
data SaleAnalysis1;
  set SalesDetails1;
  by ProductID;
  if First.ProductID then Subtotal=0;
  Subtotal + Linetotal;
```

```
if Last.ProductID;
format Subtotal dollar15.2;
run;

data SaleAnalysis2;
set SalesDetails1;
by ProductID;
if First.ProductID then SubOrderQty=0;
SubOrderQty + OrderQty;
if Last.ProductID;
format SubOrderQty comma10.2;
run;

proc sort data = SaleAnalysis1;
by ProductID;
run;

proc sort data = SaleAnalysis2;
by ProductID;
run;

data SalesAnalysis;
merge SaleAnalysis1 SaleAnalysis2;
by ProductID;
run;
```

## Output:

SAS® Studio

PFA Project\_Final\_Group 5.sas

CODE LOG RESULTS OUTPUT DATA

Table: WORK.SALEANALYSIS1

View: Column names Filter: (none)

Columns

	ProductID	ModifiedDate	UnitPrice	Linetotal	OrderQty	Name	Color
1	707	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Red	Red
2	708	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Black	Black
3	711	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Blue	Blue
4	712	06/30/2014	\$8.99	\$8.99	1	AWC Logo Cap	Multi
5	713	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, S	Multi
6	714	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, M	Multi
7	715	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, L	Multi
8	716	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, XL	Multi
9	717	05/01/2014	\$858.90	\$1,717.80	2	HL Road Frame - Red, 62	Red
10	718	05/01/2014	\$858.90	\$858.90	1	HL Road Frame - Red, 44	Red
11	719	07/31/2013	\$858.90	\$2,576.70	3	HL Road Frame - Red, 48	Red
12	722	05/01/2014	\$202.33	\$202.33	1	LL Road Frame - Black, 58	Black
13	723	07/31/2013	\$202.33	\$607.00	3	LL Road Frame - Black, 60	Black
14	725	04/30/2013	\$202.33	\$202.33	1	LL Road Frame - Red, 44	Red
15	726	02/28/2014	\$249.54	\$249.54	1	LL Road Frame - Red, 48	Red
16	727	04/30/2013	\$202.33	\$607.00	3	LL Road Frame - Red, 52	Red

Property Value

Label

Name

Length

Type

Format

Total rows: 238 Total columns: 8

Rows 1-100

Color

Messages: 12 User: u60669511

SAS® Studio

PFA Project\_Final\_Group 5.sas

CODE LOG RESULTS OUTPUT DATA

Table: WORK.SALEANALYSIS2

View: Column names Filter: (none)

Columns

	ProductID	ModifiedDate	UnitPrice	Linetotal	OrderQty	Name	Color
1	707	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Red	Red
2	708	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Black	Black
3	711	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Blue	Blue
4	712	06/30/2014	\$8.99	\$8.99	1	AWC Logo Cap	Multi
5	713	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, S	Multi
6	714	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, M	Multi
7	715	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, L	Multi
8	716	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, XL	Multi
9	717	05/01/2014	\$858.90	\$1,717.80	2	HL Road Frame - Red, 62	Red
10	718	05/01/2014	\$858.90	\$858.90	1	HL Road Frame - Red, 44	Red
11	719	07/31/2013	\$858.90	\$2,576.70	3	HL Road Frame - Red, 48	Red
12	722	05/01/2014	\$202.33	\$202.33	1	LL Road Frame - Black, 58	Black
13	723	07/31/2013	\$202.33	\$607.00	3	LL Road Frame - Black, 60	Black
14	725	04/30/2013	\$202.33	\$202.33	1	LL Road Frame - Red, 44	Red
15	726	02/28/2014	\$249.54	\$249.54	1	LL Road Frame - Red, 48	Red
16	727	04/30/2013	\$202.33	\$607.00	3	LL Road Frame - Red, 52	Red

Property Value

Label

Name

Length

Type

Format

Total rows: 238 Total columns: 8

Rows 1-100

Color

Messages: 14 User: u60669511

After Merging:

Table: WORK.SALESANALYSIS

ProductID	ModifiedDate	UnitPrice	Linetotal	OrderQty	Name	Color
707	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Red	Red
708	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Black	Black
711	06/30/2014	\$34.99	\$34.99	1	Sport-100 Helmet, Blue	Blue
712	06/30/2014	\$8.99	\$8.99	1	AWC Logo Cap	Multi
713	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, S	Multi
714	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, M	Multi
715	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, L	Multi
716	06/30/2014	\$49.99	\$49.99	1	Long-Sleeve Logo Jersey, XL	Multi
717	05/01/2014	\$858.90	\$1,717.80	2	HL Road Frame - Red, 62	Red
718	05/01/2014	\$858.90	\$858.90	1	HL Road Frame - Red, 44	Red
719	07/31/2013	\$858.90	\$2,576.70	3	HL Road Frame - Red, 48	Red
722	05/01/2014	\$202.33	\$202.33	1	LL Road Frame - Black, 58	Black
723	07/31/2013	\$202.33	\$607.00	3	LL Road Frame - Black, 60	Black
725	04/30/2013	\$202.33	\$202.33	1	LL Road Frame - Red, 44	Red
726	02/28/2014	\$249.54	\$249.54	1	LL Road Frame - Red, 48	Red
727	04/30/2013	\$202.33	\$607.00	3	LL Road Frame - Red, 52	Red

#### 4. Data Analysis

- This phase requires you to analyze the SalesAnalysis for Adventure Works and answer the following 5 questions by generating reports using Proc Print for each of the 5 questions:
  - How many Red color Helmets are sold in 2013 and 2014?
  - How many items sold in 2013 and 2014 have a Multi color?
  - What is the combined Sales total for all the helmets sold in 2013 and 2014?
  - How many Yellow Color Touring-1000 where sold in 2013 and 2014?
  - What was the total sales in 2013 and 2014?
- Create at least one chart in SAS for any analysis of your choice from SalesAnalysis dataset (this analysis can be of your choice and not necessarily from above 5 questions.)

#### Q1. How many Red color Helmets are sold in 2013 and 2014?

Code:

\*Question1;

\*How many Red color Helmets are sold in 2013 and 2014?;

data question1;

set SalesAnalysis;

if find(Name,'helmet','i') ge 1 and find(Color,'red','i') ge 1;

Grouping='Red Helmets';

```
run;
```

```
proc sort data= question1;
```

```
by Grouping;
```

```
run;
```

```
proc means noplay data=question1 nway;
```

```
class Grouping;
```

```
var SubOrderQty;
```

```
output out=question1 sum = ;
```

```
run;
```

```
title 'How many Red color Helmets are sold in 2013 and 2014?';
```

```
proc print noobs label data= question1(keep= Grouping SubOrderQty);
```

```
label SubOrderQty ='QuantitySoldTotal';
```

```
run;
```

## Output:

How many Red color Helmets are sold in 2013 and 2014?

Grouping	QuantitySoldTotal
Red Helmets	4,657.00

## Q2. How many items sold in 2013 and 2014 have a Multi color?

### Code:

```
*Question 2;
```

```
*How many items sold in 2013 and 2014 have a Multi color?;
```

```
data question2;
```

```
set SalesAnalysis;
```

```
if find(Color,'multi','i') ge 1;
```

```
Grouping='Multi Color Items';  
run;
```

```
proc sort data= question2;  
by Grouping;  
run;
```

```
proc means noplay data=question2 nway;  
class Grouping;  
var SubOrderQty;  
output out=question2 sum = ;  
run;
```

```
title 'How many items sold in 2013 and 2014 have a Multi color?';  
proc print noobs label data= question2(keep= Grouping SubOrderQty);  
label SubOrderQty='QuantitySoldTotal';  
run;
```

#### Output:

##### How many items sold in 2013 and 2014 have a Multi color?

Grouping	QuantitySoldTotal
Multi Color Items	15,009.00

#### Q3. What is the combined Sales total for all the helmets sold in 2013 and 2014?

##### Code:

```
*Question 3;
```

```
*What is the combined Sales total for all the helmets sold in 2013 and 2014?;
```

```
data question3;
```

```
set SalesAnalysis;
```

```
if find(Name,'helmet','i') ge 1;  
Grouping='All Helmets';  
run;
```

```
proc sort data= question3;  
by Grouping;  
run;
```

```
proc means noplay data=question3 nway;  
class Grouping;  
var SubTotal;  
output out=question3 sum = ;  
run;
```

```
title 'What is the combined Sales total for all the helmets sold in 2013 and 2014?';  
proc print noobs label data= question3(keep= Grouping SubTotal);  
label SubTotal='SalesTotal';  
run;
```

### **Output:**

**What is the combined Sales total for all the helmets sold in 2013 and 2014?**

Grouping	SalesTotal
All Helmets	\$381,800.34

### **Q4. How many Yellow Color Touring-1000 where sold in 2013 and 2014?**

#### **Code:**

\*Question 4;

\*How many Yellow Color Touring-1000 where sold in 2013 and 2014?;

```

data question4;
set SalesAnalysis;
if find(Name,'touring-1000','i') ge 1 and find(Color,'yellow','i') ge 1;
Grouping='Yellow Touring-1000';
run;

```

```

proc sort data= question4;
by Grouping;
run;

```

```

proc means noplay data=question4 nway;
class Grouping;
var SubOrderQty;
output out=question4 sum = ;
run;

```

title 'How many Yellow Color Touring-1000 where sold in 2013 and 2014?';  
 proc print noobs label  
 data= question4(keep= Grouping SubOrderQty);  
 label SubOrderQty='QuantitySoldTotal';  
 run;

### **Output:**

**How many Yellow Color Touring-1000 where sold in 2013 and 2014?**

Grouping	QuantitySoldTotal
Yellow Touring-1000	3,168.00

**Q5.What was the total sales in 2013 and 2014?;**

**Code:**

```
*Question5;  
*What was the total sales in 2013 and 2014?;  
data question5;  
set SalesAnalysis;  
Grouping='All Sales';  
run;
```

```
proc sort data= question5;  
by Grouping;  
run;
```

```
proc means noplay data=question5 nway;  
class Grouping;  
var SubTotal;  
output out=question5 sum = ;  
run;
```

```
title 'What was the total sales in 2013 and 2014?';  
proc print noobs label  
data= question5(keep= Grouping SubTotal);  
label SubTotal='SalesTotal';  
run;
```

### Output:

What was the total sales in 2013 and 2014?

Grouping	SalesTotal
All Sales	\$63,680,407.86

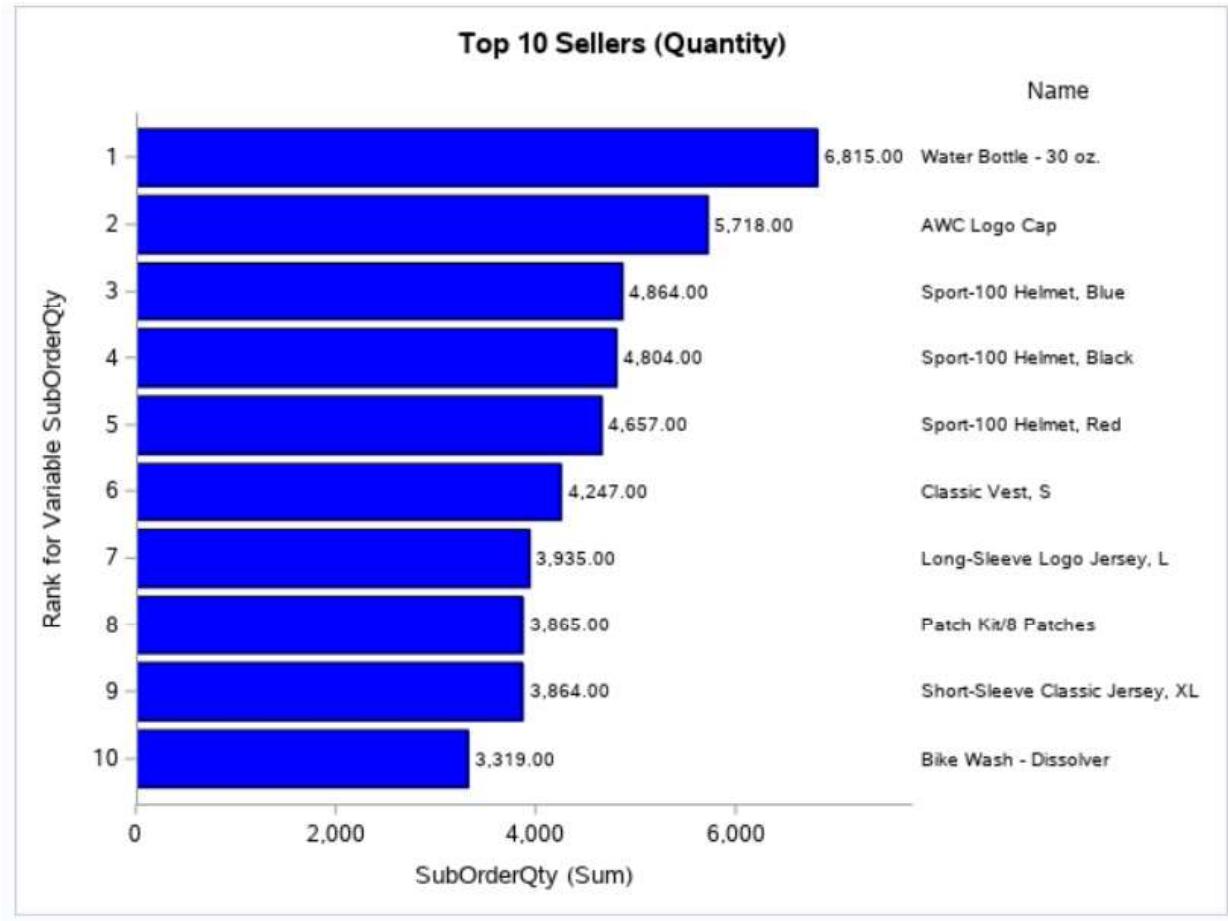
**Chart1:****Code:**

```
proc rank data=SalesAnalysis out=chart1 descending;
var SubOrderQty;
ranks r;
run;

proc sort data=chart1 out=chart1;
where r <= 10;
by r;
run;

title 'Top 10 Sellers (Quantity)';
proc sgplot data=chart1 noborder;
hbar r / response=SubOrderQty datalabel fillattrs=(color="Blue");
yaxistable Name;
run;
```

**Output:**

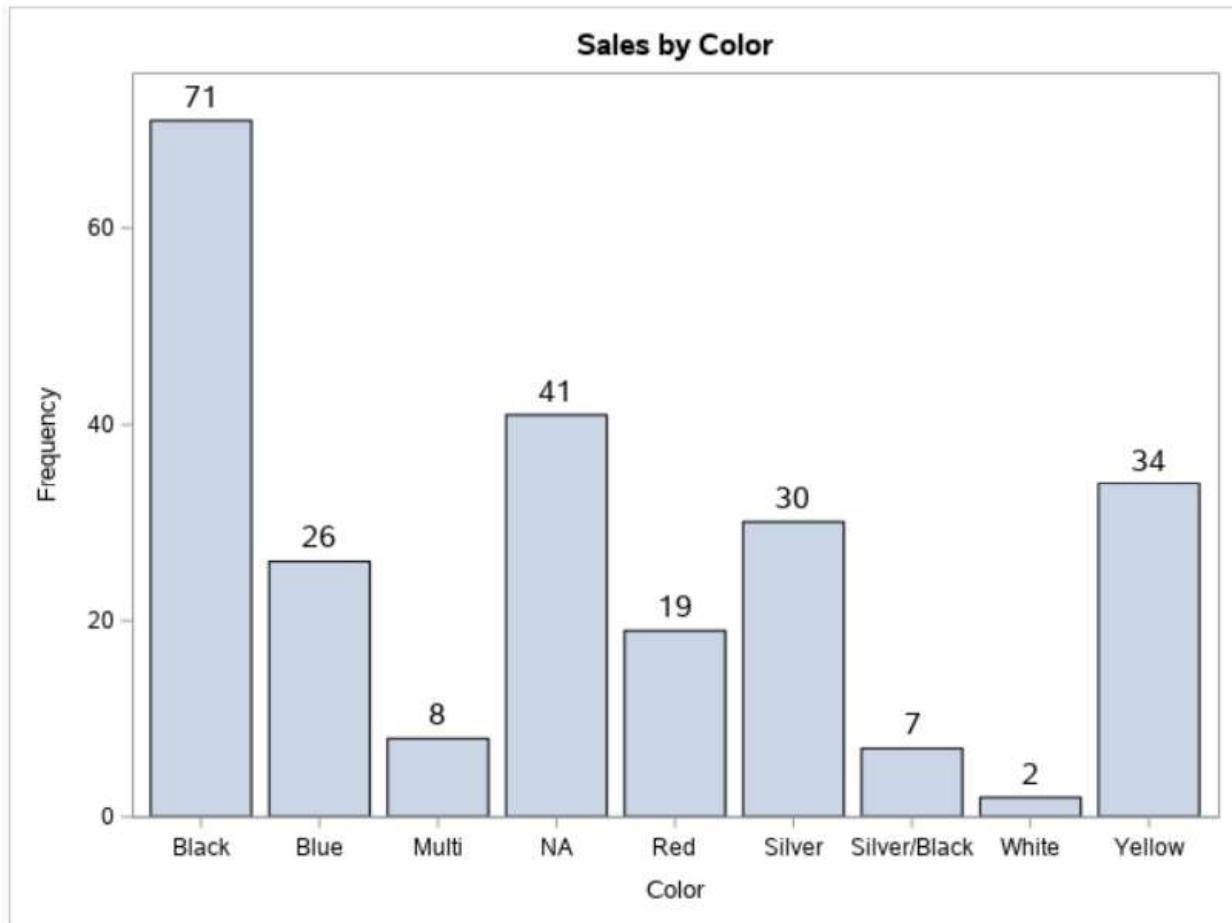


## Chart2:

### Code:

```
title 'Sales by Color';
proc sgplot data = SalesAnalysis;
vbar color / datalabel datalabelatrs=(size=12);
run;
```

### Output:



**Program Summary - PFA Project\_Final2\_Group 5.sas****Execution Environment**

Author: u60669511  
 File: /home/u60669511/BAN130ZCC/PFA Project\_Final2\_Group 5.sas  
 SAS Platform: Linux LIN X64 3.10.0-1062.9.1.el7.x86\_64  
 SAS Host: ODAWS01-USW2.ODA.SAS.COM  
 SAS Version: 9.04.01M6P11072018  
 SAS Locale: en\_US  
 Submission Time: 4/11/2022, 11:41:03 AM  
 Browser Host: BRAS-BASE-TOROON4216W-GRC-08-184-146-26-209.DSL.BELL.CA  
 User Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/100.0.4896.75 Safari/537.36  
 Application Server: ODAMID02-USW2.ODA.SAS.COM

**Code: PFA Project\_Final2\_Group 5.sas**

```
*1. DATA IMPORT;
proc import file="/home/u60669511/BAN130ZCC/AdventureWorks.xlsx"
  out=Product
  dbms=xlsx
  replace;
  sheet="Product";
run;

proc import file="/home/u60669511/BAN130ZCC/AdventureWorks.xlsx"
  out=SalesOrderDetail
  dbms=xlsx
  replace;
  sheet="SalesOrderDetail";
run;

*2 DATA CLEANING;
data Product_clean;
  set Product  (keep = ProductID Name ProductNumber Color ListPrice);
  if missing(color) then color = "NA";
  ListPricenew = input(ListPrice, 7.);
  Format ListPriceNew dollar8.2;
  Drop ListPrice;
  rename ListPriceNew = ListPrice;
run;

data SalesOrderDetail_Clean;
  set SalesOrderDetail (Keep= SalesOrderID SalesOrderDetailID OrderQty ProductID UnitPrice LineTotal ModifiedDate);
  ModifiedDatene = input(ModifiedDate ,YYMMDD19.);
  UnitPricenew   = input(UnitPrice,9. );
  LineTotalnew   = input(LineTotal, 12.);
  OrderQtynew    = input(OrderQty,2.);
  year           = year(ModifiedDatene);
  if year IN (2013,2014);
  Format ModifiedDatene mddyy10. UnitPricenew dollar11.2 LineTotalnew dollar14.2;
  Drop ModifiedDate UnitPrice LineTotal OrderQty Year;
  rename ModifiedDatene = ModifiedDate
    UnitPricenew   = UnitPrice
    LineTotalnew   = Linetotal
    OrderQtynew    = OrderQty;
run;

*3. Joining and Merging;
proc sort data = SalesOrderDetail_Clean out = SalesOrderDetail_Cleansorted;
  by ProductID;
run;

proc sort data = Product_clean out = Product_cleansorted;
  by ProductID;
run;
```

```

data SalesDetails;
merge SalesOrderDetail_Cleansorted (IN= in1)
      Product_cleansorted (IN= in2);
by ProductID;
if in1 = 1 and in2 = 1;
Drop SalesOrderID SalesOrderDetailID ProductNumber ListPrice;
run;

*Grouping;
Proc sort data = SalesDetails out = SalesDetails1;
by ProductID;
run;

data SaleAnalysis1;
set SalesDetails1;
by ProductID;
if First.ProductID then Subtotal=0;
Subtotal + Linetotal;
if Last.ProductID;
format Subtotal dollar15.2;
run;

data SaleAnalysis2;
set SalesDetails1;
by ProductID;
if First.ProductID then SubOrderQty=0;
SubOrderQty + OrderQty;
if Last.ProductID;
format SubOrderQty comma10.2;
run;

proc sort data = SaleAnalysis1;
by ProductID;
run;

proc sort data = SaleAnalysis2;
by ProductID;
run;

data SalesAnalysis;
merge SaleAnalysis1 SaleAnalysis2;
by ProductID;
run;

*Data Analysis;
*Question1;
*How many Red color Helmets are sold in 2013 and 2014?;
data question1;
set SalesAnalysis;
if find(Name,'helmet','i') ge 1 and find(Color,'red','i') ge 1;
Grouping='Red Helmets';
run;

proc sort data= question1;
by Grouping;
run;

proc means noplay data=question1 nway;
class Grouping;
var SubOrderQty;
output out=question1 sum = ;
run;

title 'How many Red color Helmets are sold in 2013 and 2014?';
proc print noobs label data= question1(keep= Grouping SubOrderQty);
label SubOrderQty = 'QuantitySoldTotal';
run;

*Question 2;
*How many items sold in 2013 and 2014 have a Multi color?;
data question2;
set SalesAnalysis;
if find(Color,'multi','i') ge 1;

```

```
Grouping='Multi Color Items';
run;

proc sort data= question2;
by Grouping;
run;

proc means noprint data=question2 nway;
class Grouping;
var SubOrderQty;
output out=question2 sum = ;
run;

title 'How many items sold in 2013 and 2014 have a Multi color?';
proc print noobs label data= question2(keep= Grouping SubOrderQty);
label SubOrderQty='QuantitySoldTotal';
run;

*Question 3;
*What is the combined Sales total for all the helmets sold in 2013 and 2014?;
data question3;
set SalesAnalysis;
if find(Name,'helmet','i') ge 1;
Grouping='All Helmets';
run;

proc sort data= question3;
by Grouping;
run;

proc means noprint data=question3 nway;
class Grouping;
var SubTotal;
output out=question3 sum = ;
run;

title 'What is the combined Sales total for all the helmets sold in 2013 and 2014?';
proc print noobs label data= question3(keep= Grouping SubTotal);
label SubTotal='SalesTotal';
run;

*Question 4;
*How many Yellow Color Touring-1000 where sold in 2013 and 2014?;
data question4;
set SalesAnalysis;
if find(Name,'touring-1000','i') ge 1 and find(Color,'yellow','i') ge 1;
Grouping='Yellow Touring-1000';
run;

proc sort data= question4;
by Grouping;
run;

proc means noprint data=question4 nway;
class Grouping;
var SubOrderQty;
output out=question4 sum = ;
run;

title 'How many Yellow Color Touring-1000 where sold in 2013 and 2014?';
proc print noobs label
data= question4(keep= Grouping SubOrderQty);
label SubOrderQty='QuantitySoldTotal';
run;

*Question5;
*What was the total sales in 2013 and 2014?;
data question5;
set SalesAnalysis;
Grouping='All Sales';
```

```

run;

proc sort data= question5;
by Grouping;
run;

proc means noplay data=question5 nway;
class Grouping;
var SubTotal;
output out=question5 sum = ;
run;

title 'What was the total sales in 2013 and 2014?';
proc print noobs label
data= question5(keep= Grouping SubTotal);
label SubTotal='SalesTotal';
run;

*Chart1;
proc rank data=SalesAnalysis out=chart1 descending;
var SubOrderQty;
ranks r;
run;

proc sort data=chart1 out=chart1;
where r <= 10;
by r;
run;

title 'Top 10 Sellers (Quantity)';
proc sgplot data=chart1 noborder;
hbar r / response=SubOrderQty datalabel fillattrs=(color="Blue");

```

## Log: PFA Project\_Final2\_Group 5.sas

Notes (108)

```

1      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
68
69      *1. DATA IMPORT;
70      proc import file="/home/u60669511/BAN130ZCC/AdventureWorks.xlsx"
71          out=Product
72          dbms=xlsx
73          replace;
74          sheet="Product";
75      run;

NOTE: One or more variables were converted because the data type is not supported by the V9 engine. For more details, run with
options MSGLEVEL=I.
NOTE: The import data set has 504 observations and 25 variables.
NOTE: WORK.PRODUCT data set was successfully created.
NOTE: PROCEDURE IMPORT used (Total process time):
      real time      1.13 seconds
      user cpu time  1.07 seconds
      system cpu time  0.06 seconds
      memory        77230.31k
      OS Memory     110448.00k
      Timestamp     04/11/2022 03:40:48 PM
      Step Count      24   Switch Count  2
      Page Faults    0
      Page Reclaims  20000
      Page Swaps     0
      Voluntary Context Switches  21
      Involuntary Context Switches  6
      Block Input Operations  9872
      Block Output Operations  264

76
77
78      proc import file="/home/u60669511/BAN130ZCC/AdventureWorks.xlsx"
79          out=SalesOrderDetail
80          dbms=xlsx
81          replace;
82          sheet="SalesOrderDetail";

```

```
83      run;
```

NOTE: One or more variables were converted because the data type is not supported by the V9 engine. For more details, run with options MSGLEVEL=I.

NOTE: The import data set has 121317 observations and 11 variables.

NOTE: WORK.SALESORDERDETAIL data set was successfully created.

NOTE: PROCEDURE IMPORT used (Total process time):

real time	13.75 seconds
user cpu time	13.69 seconds
system cpu time	0.06 seconds
memory	78426.93k
OS Memory	112496.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	25 Switch Count 2
Page Faults	0
Page Reclaims	19794
Page Swaps	0
Voluntary Context Switches	23
Involuntary Context Switches	300
Block Input Operations	13136
Block Output Operations	26632

```
84
```

```
*2 DATA CLEANING;
data Product_clean;
    set Product (keep = ProductID Name ProductNumber Color ListPrice);
    if missing(color) then color = "NA";
    ListPricenew = input(ListPrice, 7.);
    Format ListPriceNew dollar8.2;
    Drop ListPrice;
    rename ListPriceNew = ListPrice;
run;
```

NOTE: There were 504 observations read from the data set WORK.PRODUCT.

NOTE: The data set WORK.PRODUCT\_CLEAN has 504 observations and 5 variables.

NOTE: DATA statement used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	959.34k
OS Memory	27304.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	26 Switch Count 2
Page Faults	0
Page Reclaims	180
Page Swaps	0
Voluntary Context Switches	11
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```
94
```

```
data SalesOrderDetail_Clean;
    set SalesOrderDetail (Keep= SalesOrderID SalesOrderDetailID OrderQty ProductID UnitPrice LineTotal ModifiedDate);
    ModifiedDatene = input(ModifiedDate ,YYMMDD19.);
    UnitPricenew = input(UnitPrice,9. );
    LineTotalnew = input(LineTotal, 12.);
    OrderQtnew = input(OrderQty,2. );
    year = year(ModifiedDatene);
    if year IN (2013,2014);
    Format ModifiedDatene mmddyy10. UnitPricenew dollar11.2 LineTotalnew dollar14.2;
    Drop ModifiedDate UnitPrice LineTotal OrderQty Year;
    rename ModifiedDatene = ModifiedDate
        UnitPricenew = UnitPrice
        LineTotalnew = Linetotal
        OrderQtnew = OrderQty;
run;
```

NOTE: There were 121317 observations read from the data set WORK.SALESORDERDETAIL.

NOTE: The data set WORK.SALESORDERDETAIL\_CLEAN has 93912 observations and 7 variables.

NOTE: DATA statement used (Total process time):

real time	0.05 seconds
user cpu time	0.05 seconds
system cpu time	0.01 seconds
memory	3594.65k
OS Memory	29608.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	27 Switch Count 4
Page Faults	0
Page Reclaims	534

Page Swaps	0
Voluntary Context Switches	15
Involuntary Context Switches	2
Block Input Operations	0
Block Output Operations	8968

```

110
111
112
113      *3. Joining and Merging;
114      proc sort data = SalesOrderDetail_Clean out = SalesOrderDetail_Cleansorted;
115          by ProductID;
116      run;

```

NOTE: There were 93912 observations read from the data set WORK.SALESORDERDETAIL\_CLEAN.  
 NOTE: The data set WORK.SALESORDERDETAIL\_CLEANSORTED has 93912 observations and 7 variables.

NOTE: PROCEDURE SORT used (Total process time):

real time	0.04 seconds
user cpu time	0.03 seconds
system cpu time	0.00 seconds
memory	9719.46k
OS Memory	35544.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	28 Switch Count 2
Page Faults	0
Page Reclaims	2111
Page Swaps	0
Voluntary Context Switches	13
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	8976

```

117
118      proc sort data = Product_clean out = Product_cleansorted;
119          by ProductID;
120      run;

```

NOTE: There were 504 observations read from the data set WORK.PRODUCT\_CLEAN.  
 NOTE: The data set WORK.PRODUCT\_CLEANSORTED has 504 observations and 5 variables.

NOTE: PROCEDURE SORT used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	1189.46k
OS Memory	27820.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	29 Switch Count 2
Page Faults	0
Page Reclaims	141
Page Swaps	0
Voluntary Context Switches	10
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	272

```

121
122      data SalesDetails;
123          merge SalesOrderDetail_Cleansorted (IN= in1)
124              Product_cleansorted (IN= in2);
125          by ProductID;
126          if in1 = 1 and in2 = 1;
127          Drop SalesOrderID SalesOrderDetailID ProductNumber ListPrice;
128      run;

```

NOTE: There were 93912 observations read from the data set WORK.SALESORDERDETAIL\_CLEANSORTED.

NOTE: There were 504 observations read from the data set WORK.PRODUCT\_CLEANSORTED.

NOTE: The data set WORK.SALESDETAILS has 93912 observations and 7 variables.

NOTE: DATA statement used (Total process time):

real time	0.02 seconds
user cpu time	0.02 seconds
system cpu time	0.01 seconds
memory	4009.43k
OS Memory	30124.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	30 Switch Count 2
Page Faults	0
Page Reclaims	557
Page Swaps	0
Voluntary Context Switches	11

Involuntary Context Switches	1
Block Input Operations	0
Block Output Operations	14856

```

129
130      *Grouping;
131      Proc sort data = SalesDetails out = SalesDetails1;
132      by ProductID;
133      run;

```

NOTE: There were 93912 observations read from the data set WORK.SALESDETAILS.

NOTE: The data set WORK.SALESDETAILS1 has 93912 observations and 7 variables.

NOTE: PROCEDURE SORT used (Total process time):

real time	0.03 seconds
user cpu time	0.02 seconds
system cpu time	0.01 seconds
memory	13016.18k
OS Memory	38892.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	31 Switch Count 3
Page Faults	0
Page Reclaims	2689
Page Swaps	0
Voluntary Context Switches	14
Involuntary Context Switches	1
Block Input Operations	0
Block Output Operations	14864

```

134
135      data SaleAnalysis1;
136      set SalesDetails1;
137      by ProductID;
138      if First.ProductID then Subtotal=0;
139      Subtotal + Linetotal;
140      if Last.ProductID;
141      format Subtotal dollar15.2;
142      run;

```

NOTE: There were 93912 observations read from the data set WORK.SALESDETAILS1.

NOTE: The data set WORK.SALEANALYSIS1 has 238 observations and 8 variables.

NOTE: DATA statement used (Total process time):

real time	0.01 seconds
user cpu time	0.02 seconds
system cpu time	0.00 seconds
memory	2368.93k
OS Memory	28328.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	32 Switch Count 3
Page Faults	0
Page Reclaims	310
Page Swaps	0
Voluntary Context Switches	15
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```

143
144      data SaleAnalysis2;
145      set SalesDetails1;
146      by ProductID;
147      if First.ProductID then SubOrderQty=0;
148      SubOrderQty + OrderQty;
149      if Last.ProductID;
150      format SubOrderQty comma10.2;
151      run;

```

NOTE: There were 93912 observations read from the data set WORK.SALESDETAILS1.

NOTE: The data set WORK.SALEANALYSIS2 has 238 observations and 8 variables.

NOTE: DATA statement used (Total process time):

real time	0.01 seconds
user cpu time	0.01 seconds
system cpu time	0.00 seconds
memory	2370.96k
OS Memory	28328.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	33 Switch Count 3
Page Faults	0
Page Reclaims	309
Page Swaps	0

```

Voluntary Context Switches      20
Involuntary Context Switches   0
Block Input Operations        0
Block Output Operations       264

```

```

152
153      proc sort data = SaleAnalysis1;
154      by ProductID;
155      run;

```

NOTE: There were 238 observations read from the data set WORK.SALEANALYSIS1.

NOTE: The data set WORK.SALEANALYSIS1 has 238 observations and 8 variables.

NOTE: PROCEDURE SORT used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	929.09k
OS Memory	27560.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	34    Switch Count  2
Page Faults	0
Page Reclaims	111
Page Swaps	0
Voluntary Context Switches	11
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```

156
157      proc sort data = SaleAnalysis2;
158      by ProductID;
159      run;

```

NOTE: There were 238 observations read from the data set WORK.SALEANALYSIS2.

NOTE: The data set WORK.SALEANALYSIS2 has 238 observations and 8 variables.

NOTE: PROCEDURE SORT used (Total process time):

real time	0.00 seconds
user cpu time	0.01 seconds
system cpu time	0.00 seconds
memory	928.09k
OS Memory	27560.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	35    Switch Count  2
Page Faults	0
Page Reclaims	108
Page Swaps	0
Voluntary Context Switches	10
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```

160
161      data SalesAnalysis;
162      merge SaleAnalysis1 SaleAnalysis2;
163      by ProductID;
164      run;

```

NOTE: There were 238 observations read from the data set WORK.SALEANALYSIS1.

NOTE: There were 238 observations read from the data set WORK.SALEANALYSIS2.

NOTE: The data set WORK.SALEANALYSIS has 238 observations and 9 variables.

NOTE: DATA statement used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	1390.53k
OS Memory	27820.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	36    Switch Count  2
Page Faults	0
Page Reclaims	156
Page Swaps	0
Voluntary Context Switches	10
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```

165
166      *Data Analysis;

```

```

167      *Question1;
168      *How many Red color Helmets are sold in 2013 and 2014?;
169      data question1;
170      set SalesAnalysis;
171      if find(Name,'helmet','i') ge 1 and find(Color,'red','i') ge 1;
172      Grouping='Red Helmets';
173      run;

```

NOTE: There were 238 observations read from the data set WORK.SALESANALYSIS.

NOTE: The data set WORK.QUESTION1 has 1 observations and 10 variables.

NOTE: DATA statement used (Total process time):

real time	0.00	seconds
user cpu time	0.00	seconds
system cpu time	0.00	seconds
memory	955.31k	
OS Memory	27560.00k	
Timestamp	04/11/2022 03:41:02 PM	
Step Count	37	Switch Count 2
Page Faults	0	
Page Reclaims	143	
Page Swaps	0	
Voluntary Context Switches	12	
Involuntary Context Switches	0	
Block Input Operations	0	
Block Output Operations	264	

174

```

175      proc sort data= question1;
176      by Grouping;
177      run;

```

NOTE: There were 1 observations read from the data set WORK.QUESTION1.

NOTE: The data set WORK.QUESTION1 has 1 observations and 10 variables.

NOTE: PROCEDURE SORT used (Total process time):

real time	0.00	seconds
user cpu time	0.00	seconds
system cpu time	0.00	seconds
memory	925.81k	
OS Memory	27560.00k	
Timestamp	04/11/2022 03:41:02 PM	
Step Count	38	Switch Count 2
Page Faults	0	
Page Reclaims	113	
Page Swaps	0	
Voluntary Context Switches	10	
Involuntary Context Switches	0	
Block Input Operations	0	
Block Output Operations	264	

178

```

179      proc means noprint data=question1 nway;
180      class Grouping;
181      var SubOrderQty;
182      output out=question1 sum = ;
183      run;

```

NOTE: There were 1 observations read from the data set WORK.QUESTION1.

NOTE: The data set WORK.QUESTION1 has 1 observations and 4 variables.

NOTE: PROCEDURE MEANS used (Total process time):

real time	0.00	seconds
user cpu time	0.00	seconds
system cpu time	0.00	seconds
memory	8421.46k	
OS Memory	34748.00k	
Timestamp	04/11/2022 03:41:02 PM	
Step Count	39	Switch Count 3
Page Faults	0	
Page Reclaims	1967	
Page Swaps	0	
Voluntary Context Switches	30	
Involuntary Context Switches	0	
Block Input Operations	0	
Block Output Operations	264	

184

```

185      title 'How many Red color Helmets are sold in 2013 and 2014?';
186      proc print noobs label data= question1(keep= Grouping SubOrderQty);
187      label SubOrderQty ='QuantitySoldTotal';
188      run;

```

NOTE: There were 1 observations read from the data set WORK.QUESTION1.

NOTE: PROCEDURE PRINT used (Total process time):

real time	0.01 seconds
user cpu time	0.01 seconds
system cpu time	0.00 seconds
memory	1332.43k
OS Memory	28068.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	40 Switch Count 0
Page Faults	0
Page Reclaims	437
Page Swaps	0
Voluntary Context Switches	0
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	8

```

189
190      *Question 2;
191      *How many items sold in 2013 and 2014 have a Multi color?;
192      data question2;
193      set SalesAnalysis;
194      if find(Color,'multi','i') ge 1;
195      Grouping='Multi Color Items';
196      run;

```

NOTE: There were 238 observations read from the data set WORK.SALESANALYSIS.

NOTE: The data set WORK.QUESTION2 has 8 observations and 10 variables.

NOTE: DATA statement used (Total process time):

real time	0.00 seconds
user cpu time	0.01 seconds
system cpu time	0.00 seconds
memory	951.46k
OS Memory	28328.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	41 Switch Count 2
Page Faults	0
Page Reclaims	144
Page Swaps	0
Voluntary Context Switches	13
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```

197
198      proc sort data= question2;
199      by Grouping;
200      run;

```

NOTE: There were 8 observations read from the data set WORK.QUESTION2.

NOTE: The data set WORK.QUESTION2 has 8 observations and 10 variables.

NOTE: PROCEDURE SORT used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	927.75k
OS Memory	28328.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	42 Switch Count 2
Page Faults	0
Page Reclaims	113
Page Swaps	0
Voluntary Context Switches	9
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```

201
202      proc means noplay data=question2 nway;
203      class Grouping;
204      var SubOrderQty;
205      output out=question2 sum = ;
206      run;

```

NOTE: There were 8 observations read from the data set WORK.QUESTION2.

NOTE: The data set WORK.QUESTION2 has 1 observations and 4 variables.

NOTE: PROCEDURE MEANS used (Total process time):

real time	0.00 seconds
-----------	--------------

```

user cpu time      0.00 seconds
system cpu time   0.00 seconds
memory           7937.43k
OS Memory        34492.00k
Timestamp        04/11/2022 03:41:02 PM
Step Count        43  Switch Count  3
Page Faults      0
Page Reclaims    1610
Page Swaps       0
Voluntary Context Switches 21
Involuntary Context Switches 0
Block Input Operations 0
Block Output Operations 264

```

```

207
208      title 'How many items sold in 2013 and 2014 have a Multi color?';
209      proc print noobs label data= question2(keep= Grouping SubOrderQty);
210      label SubOrderQty='QuantitySoldTotal';
211      run;

```

NOTE: There were 1 observations read from the data set WORK.QUESTION2.

NOTE: PROCEDURE PRINT used (Total process time):

```

real time         0.00 seconds
user cpu time    0.01 seconds
system cpu time  0.00 seconds
memory          664.34k
OS Memory        28324.00k
Timestamp        04/11/2022 03:41:02 PM
Step Count        44  Switch Count  0
Page Faults      0
Page Reclaims    68
Page Swaps       0
Voluntary Context Switches 0
Involuntary Context Switches 0
Block Input Operations 0
Block Output Operations 0

```

```

212
213
214
215      *Question 3;
216      *What is the combined Sales total for all the helmets sold in 2013 and 2014?;
217      data question3;
218      set SalesAnalysis;
219      if find(Name,'helmet','i') ge 1;
220      Grouping='All Helmets';
221      run;

```

NOTE: There were 238 observations read from the data set WORK.SALESANALYSIS.

NOTE: The data set WORK.QUESTION3 has 3 observations and 10 variables.

NOTE: DATA statement used (Total process time):

```

real time         0.00 seconds
user cpu time    0.00 seconds
system cpu time  0.00 seconds
memory          948.43k
OS Memory        28584.00k
Timestamp        04/11/2022 03:41:02 PM
Step Count        45  Switch Count  2
Page Faults      0
Page Reclaims    124
Page Swaps       0
Voluntary Context Switches 15
Involuntary Context Switches 0
Block Input Operations 0
Block Output Operations 264

```

```

222
223      proc sort data= question3;
224      by Grouping;
225      run;

```

NOTE: There were 3 observations read from the data set WORK.QUESTION3.

NOTE: The data set WORK.QUESTION3 has 3 observations and 10 variables.

NOTE: PROCEDURE SORT used (Total process time):

```

real time         0.00 seconds
user cpu time    0.00 seconds
system cpu time  0.00 seconds
memory          928.21k
OS Memory        28584.00k

```

```

Timestamp      04/11/2022 03:41:02 PM
Step Count      46  Switch Count  2
Page Faults    0
Page Reclaims   113
Page Swaps      0
Voluntary Context Switches  12
Involuntary Context Switches 3
Block Input Operations  0
Block Output Operations  264

226
227     proc means noprint data=question3 nway;
228     class Grouping;
229     var SubTotal;
230     output out=question3 sum = ;
231     run;

NOTE: There were 3 observations read from the data set WORK.QUESTION3.
NOTE: The data set WORK.QUESTION3 has 1 observations and 4 variables.
NOTE: PROCEDURE MEANS used (Total process time):
      real time      0.00 seconds
      user cpu time  0.00 seconds
      system cpu time  0.01 seconds
      memory        8415.46k
      OS Memory     35516.00k
      Timestamp     04/11/2022 03:41:02 PM
      Step Count      47  Switch Count  3
      Page Faults    0
      Page Reclaims   1747
      Page Swaps      0
      Voluntary Context Switches 22
      Involuntary Context Switches 0
      Block Input Operations  0
      Block Output Operations  264

232
233     title 'What is the combined Sales total for all the helmets sold in 2013 and 2014?';
234     proc print noobs label data= question3(keep= Grouping SubTotal);
235     label SubTotal='SalesTotal';
236     run;

NOTE: There were 1 observations read from the data set WORK.QUESTION3.
NOTE: PROCEDURE PRINT used (Total process time):
      real time      0.01 seconds
      user cpu time  0.01 seconds
      system cpu time  0.00 seconds
      memory        613.21k
      OS Memory     28324.00k
      Timestamp     04/11/2022 03:41:02 PM
      Step Count      48  Switch Count  0
      Page Faults    0
      Page Reclaims   62
      Page Swaps      0
      Voluntary Context Switches 0
      Involuntary Context Switches 0
      Block Input Operations  0
      Block Output Operations  0

237
238     *Question 4;
239     *How many Yellow Color Touring-1000 where sold in 2013 and 2014?;
240     data question4;
241     set SalesAnalysis;
242     if find(Name,'touring-1000','i') ge 1 and find(Color,'yellow','i') ge 1;
243     Grouping='Yellow Touring-1000';
244     run;

NOTE: There were 238 observations read from the data set WORK.SALESANALYSIS.
NOTE: The data set WORK.QUESTION4 has 4 observations and 10 variables.
NOTE: DATA statement used (Total process time):
      real time      0.00 seconds
      user cpu time  0.01 seconds
      system cpu time  0.00 seconds
      memory        957.75k
      OS Memory     28584.00k
      Timestamp     04/11/2022 03:41:02 PM
      Step Count      49  Switch Count  2
      Page Faults    0
      Page Reclaims   124

```

Page Swaps	0
Voluntary Context Switches	11
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```

245
246      proc sort data= question4;
247      by Grouping;
248      run;

```

NOTE: There were 4 observations read from the data set WORK.QUESTION4.

NOTE: The data set WORK.QUESTION4 has 4 observations and 10 variables.

NOTE: PROCEDURE SORT used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	930.25k
OS Memory	28584.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	50 Switch Count 2
Page Faults	0
Page Reclaims	113
Page Swaps	0
Voluntary Context Switches	9
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```

249
250      proc means noplay data=question4 nway;
251      class Grouping;
252      var SubOrderQty;
253      output out=question4 sum = ;
254      run;

```

NOTE: There were 4 observations read from the data set WORK.QUESTION4.

NOTE: The data set WORK.QUESTION4 has 1 observations and 4 variables.

NOTE: PROCEDURE MEANS used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	7937.21k
OS Memory	34492.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	51 Switch Count 3
Page Faults	0
Page Reclaims	1571
Page Swaps	0
Voluntary Context Switches	20
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```

255
256      title 'How many Yellow Color Touring-1000 where sold in 2013 and 2014?';
257      proc print noobs label
258      data= question4(keep= Grouping SubOrderQty);
259      label SubOrderQty='QuantitySoldTotal';
260      run;

```

NOTE: There were 1 observations read from the data set WORK.QUESTION4.

NOTE: PROCEDURE PRINT used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	612.59k
OS Memory	28324.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	52 Switch Count 0
Page Faults	0
Page Reclaims	61
Page Swaps	0
Voluntary Context Switches	0
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	8

```

261
262
263 *Question5;
264 *What was the total sales in 2013 and 2014?;
265 data question5;
266 set SalesAnalysis;
267 Grouping='All Sales';
268 run;

```

NOTE: There were 238 observations read from the data set WORK.SALESANALYSIS.

NOTE: The data set WORK.QUESTION5 has 238 observations and 10 variables.

NOTE: DATA statement used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	954.90k
OS Memory	28584.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	53 Switch Count 2
Page Faults	0
Page Reclaims	122
Page Swaps	0
Voluntary Context Switches	10
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

269

```

270 proc sort data= question5;
271 by Grouping;
272 run;

```

NOTE: There were 238 observations read from the data set WORK.QUESTIONS.

NOTE: The data set WORK.QUESTION5 has 238 observations and 10 variables.

NOTE: PROCEDURE SORT used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	932.37k
OS Memory	28584.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	54 Switch Count 2
Page Faults	0
Page Reclaims	107
Page Swaps	0
Voluntary Context Switches	9
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

273

```

274 proc means noprint data=question5 nway;
275 class Grouping;
276 var SubTotal;
277 output out=question5 sum = ;
278 run;

```

NOTE: There were 238 observations read from the data set WORK.QUESTIONS.

NOTE: The data set WORK.QUESTION5 has 1 observations and 4 variables.

NOTE: PROCEDURE MEANS used (Total process time):

real time	0.00 seconds
user cpu time	0.01 seconds
system cpu time	0.00 seconds
memory	8410.96k
OS Memory	35516.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	55 Switch Count 3
Page Faults	0
Page Reclaims	1725
Page Swaps	0
Voluntary Context Switches	20
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

279

```

280 title 'What was the total sales in 2013 and 2014?';
281 proc print noobs label
282 data= question5(keep= Grouping SubTotal);

```

```
283      label SubTotal='SalesTotal';
284      run;
```

NOTE: There were 1 observations read from the data set WORK.QUESTIONS.

NOTE: PROCEDURE PRINT used (Total process time):

real time	0.00 seconds
user cpu time	0.01 seconds
system cpu time	0.00 seconds
memory	613.84k
OS Memory	28324.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	56 Switch Count 0
Page Faults	0
Page Reclaims	60
Page Swaps	0
Voluntary Context Switches	0
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	0

```
285
```

```
286
```

```
287
```

```
288      *Chart1;
289      proc rank data=SalesAnalysis out=chart1 descending;
290      var SubOrderQty;
291      ranks r;
292      run;
```

NOTE: The data set WORK.CHART1 has 238 observations and 10 variables.

NOTE: PROCEDURE RANK used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	2721.40k
OS Memory	30636.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	57 Switch Count 4
Page Faults	0
Page Reclaims	189
Page Swaps	0
Voluntary Context Switches	22
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	528

```
293
```

```
294      proc sort data=chart1 out=chart1;
295      where r <= 10;
296      by r;
297      run;
```

NOTE: There were 10 observations read from the data set WORK.CHART1.

WHERE r<=10;

NOTE: The data set WORK.CHART1 has 10 observations and 10 variables.

NOTE: PROCEDURE SORT used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.00 seconds
memory	1202.34k
OS Memory	28844.00k
Timestamp	04/11/2022 03:41:02 PM
Step Count	58 Switch Count 2
Page Faults	0
Page Reclaims	167
Page Swaps	0
Voluntary Context Switches	11
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	272

```
298
```

```
299      title 'Top 10 Sellers (Quantity)';
300      proc sgplot data=chart1 noborder;
301      hbar r / response=SubOrderQty datalabel fillattrs=(color="Blue");
302      yaxistable Name;
303      run;
```

NOTE: Since no format is assigned, the numeric category variable will use the default of BEST6.

NOTE: PROCEDURE SGFREQ used (Total process time):

real time	2.29 seconds
user cpu time	0.06 seconds
system cpu time	0.01 seconds
memory	8238.43k
OS Memory	34604.00k
Timestamp	04/11/2022 03:41:05 PM
Step Count	59 Switch Count 2
Page Faults	1
Page Reclaims	2728
Page Swaps	0
Voluntary Context Switches	340
Involuntary Context Switches	0
Block Input Operations	64
Block Output Operations	816

NOTE: There were 10 observations read from the data set WORK.CHART1.

```
304
305      *Chart2;
306      title 'Sales by Color';
307      proc sgplot data = SalesAnalysis;
308      vbar color / datalabel datalabelatrs=(size=12);
309      run;
```

NOTE: PROCEDURE SGFREQ used (Total process time):

real time	0.14 seconds
user cpu time	0.04 seconds
system cpu time	0.01 seconds
memory	2089.62k
OS Memory	35240.00k
Timestamp	04/11/2022 03:41:05 PM
Step Count	60 Switch Count 2
Page Faults	0
Page Reclaims	547
Page Swaps	0
Voluntary Context Switches	163
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	384

NOTE: There were 238 observations read from the data set WORK.SALESANALYSIS.

```
310
311      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
321
```

### Results: PFA Project\_Final2\_Group 5.sas

How many Red color Helmets are sold in 2013 and 2014?

Grouping	QuantitySoldTotal
Red Helmets	4,657.00

How many items sold in 2013 and 2014 have a Multi color?

Grouping	QuantitySoldTotal
Multi Color Items	15,009.00

What is the combined Sales total for all the helmets sold in 2013 and 2014?

Grouping	SalesTotal
All Helmets	\$381,800.34

How many Yellow Color Touring-1000 where sold in 2013 and 2014?

Grouping	QuantitySoldTotal
Yellow Touring-1000	3,168.00

What was the total sales in 2013 and 2014?

Grouping	SalesTotal
All Sales	\$63,680,407.86

