

# Adventure Works BI End-To-End Project

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# Project Description



Adventure Works Cycles is a multinational company for bikes manufacturing, the company continues to grow. They demand an End-To-End Business Intelligence Solution to track and analyze their sales for a better decision-making.



# Project Phases

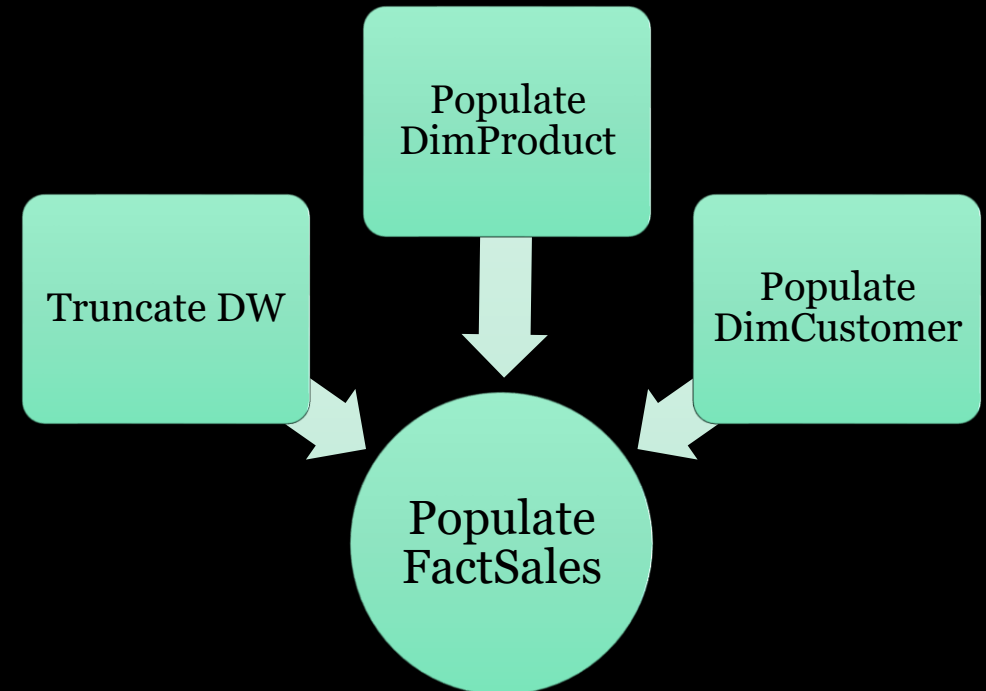
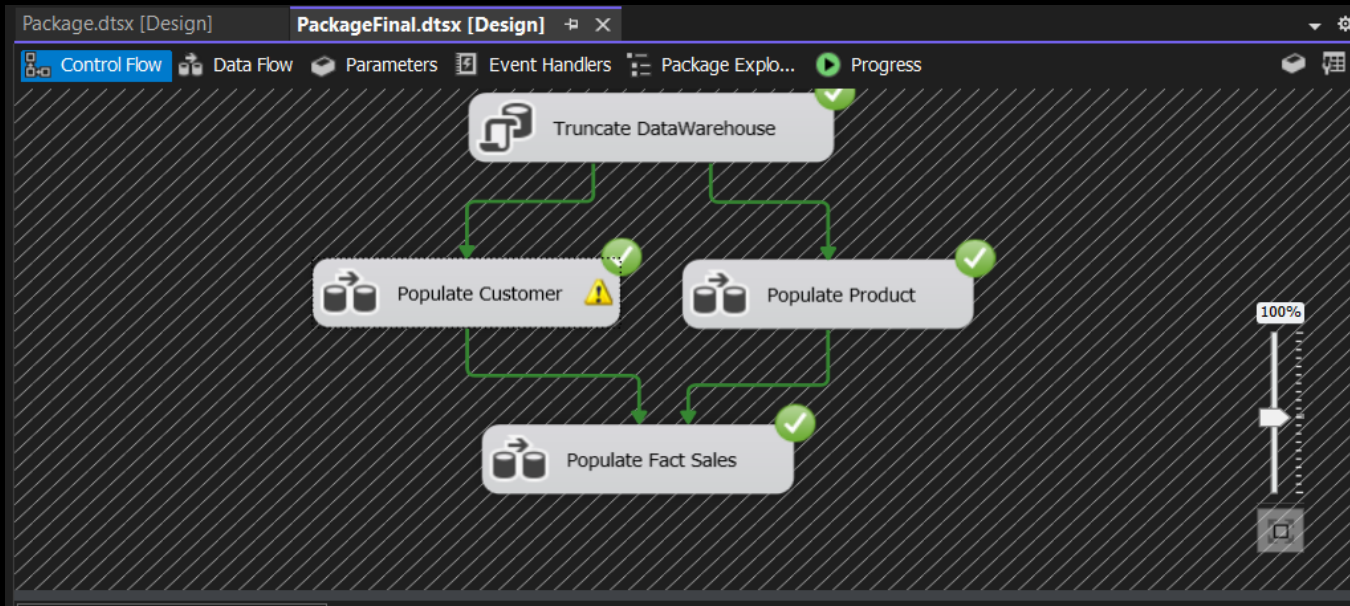
Phase	Tools Used
1. Data Integration & Warehousing	<ul style="list-style-type: none"><li>• SQL Server</li><li>• SSIS(SQL Server Integration Services)</li><li>• Visual Studio</li></ul>
2. Data Cleaning & Transformation	<ul style="list-style-type: none"><li>• Power Query</li></ul>
3. Data Modeling: Star Schema Used	<ul style="list-style-type: none"><li>• Microsoft PowerBI</li></ul>
4. Data Visualization & Reporting	<ul style="list-style-type: none"><li>• Microsoft PowerBI</li><li>• DAX(Data Analysis Expressions)</li></ul>



# Phase 1

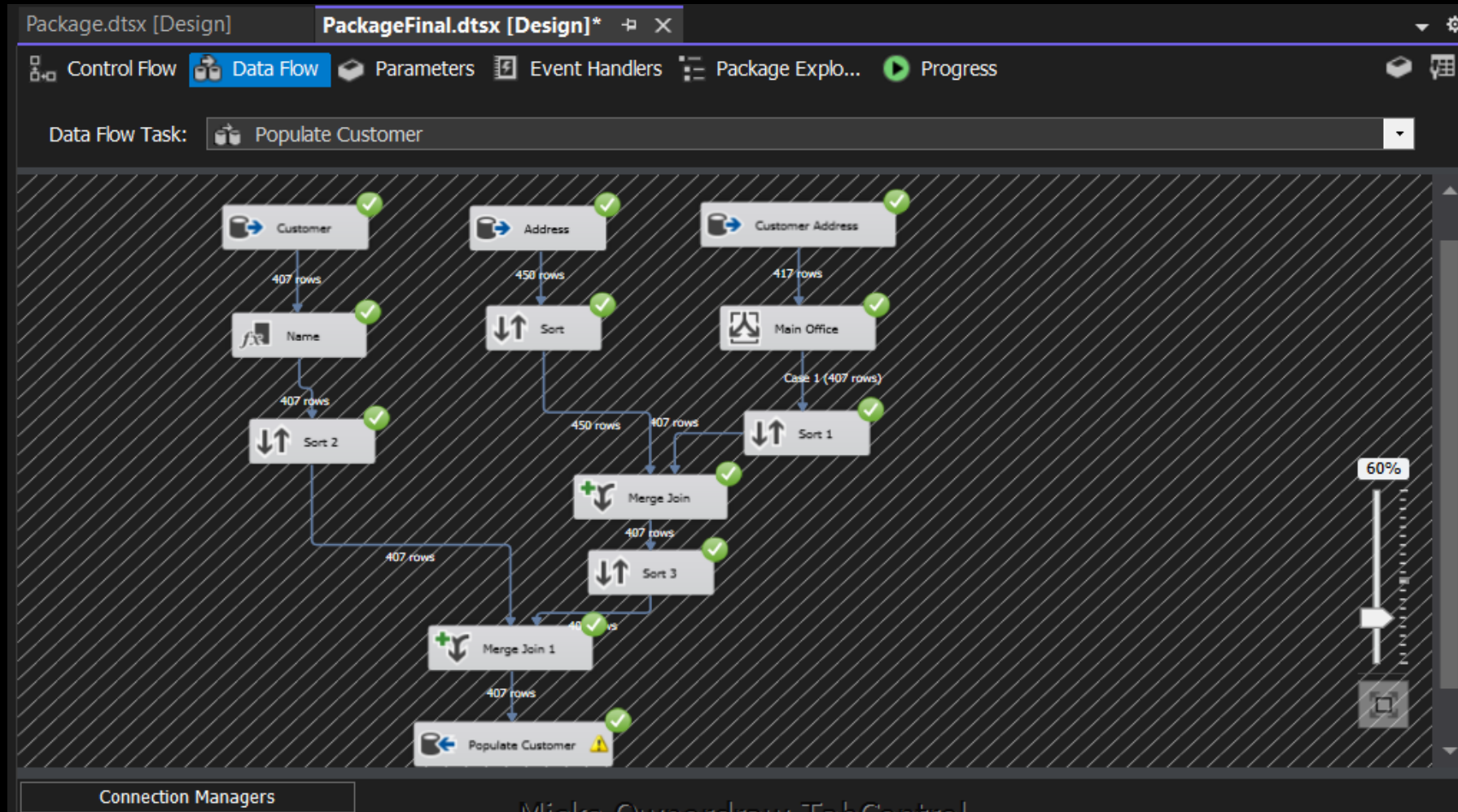
Data Integration & Warehousing

# Control Flow





# Populate Customer Data Flow



# DimCustomer Populated Table (407 Rows)



SQLQuery1.sql - loc...\Karim Bassel (56)\*

```
SELECT *  
from DimCustomer;
```

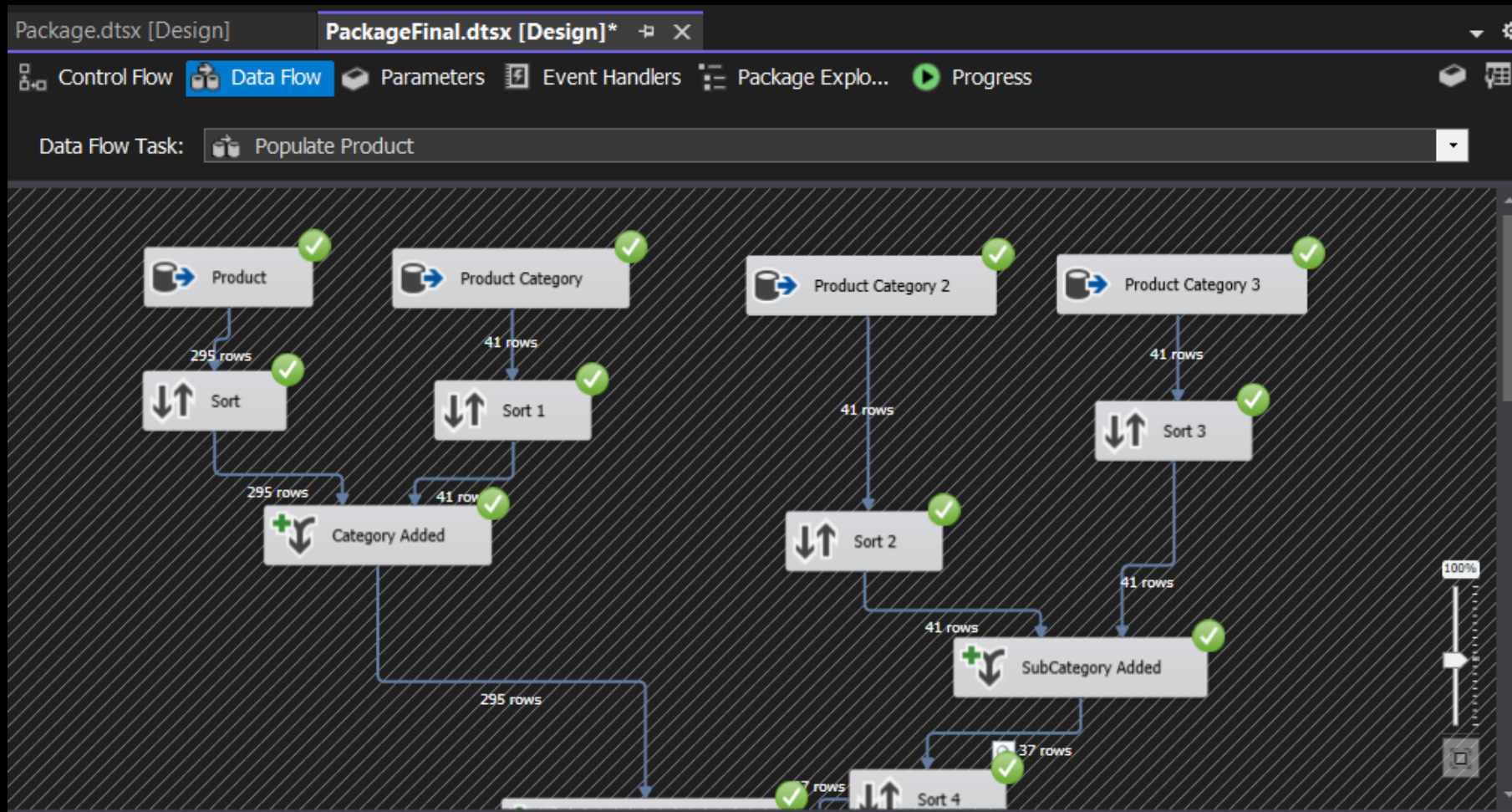
193 %

Results Messages

	CustomerKey	CustomerAltKey	CompanyName	Name	Title	Phone	Email	Address	City
1	6292	29485	Professional Sales and Service	Catherine Abel	Ms.	747-555-0171	catherine0@adventure-works.com	57251 Serene Blvd	Van N
2	6293	29486	Riders Company	Kim Abercrombie	Ms.	334-555-0137	kim2@adventure-works.com	Tanger Factory	Branch
3	6294	29489	Area Bike Accessories	Frances Adams	Ms.	991-555-0183	frances0@adventure-works.com	6900 Sisk Road	Model
4	6295	29490	Bicycle Accessories and Kits	Margaret Smith	Ms.	959-555-0151	margaret0@adventure-works.com	Lewiston Mall	Lewist
5	6296	29492	Valley Bicycle Specialists	Jay Adams	Mr.	158-555-0142	jay1@adventure-works.com	Blue Ridge Mall	Kansa
6	6297	29494	Vinyl and Plastic Goods Corporation	Samuel Agcaoili	Mr.	554-555-0110	samuel0@adventure-works.com	No. 25800-130 King Street West	Toront
7	6298	29496	Fun Toys and Bikes	Robert Ahlering	Mr.	678-555-0175	robert1@adventure-works.com	6500 East Grant Road	Tucso
8	6299	29497	Great Bikes	François Ferrier	Mr.	571-555-0128	francois1@adventure-works.com	Eastridge Mall	Caspe
9	6300	29499	Valley Toy Store	Amy Alberts	Ms.	727-555-0115	amy1@adventure-works.com	252851 Rowan Place	Richm
10	6301	29502	Major Sport Suppliers	Paul Alcorn	Mr.	331-555-0162	paul2@adventure-works.com	White Mountain Mall	Rock S
11	6302	29503	Family's Favorite Bike Shop	Gregory Alderson	Mr.	968-555-0153	gregory0@adventure-works.com	25981 College Street	Montr
12	6303	29505	Imported and Domestic Cycles	Michelle Alexander	Ms.	115-555-0175	michelle0@adventure-works.com	22589 West Craig Road	North
13	6304	29506	Systematic Sales	Sean Jacobson	Mr.	555-555-0162	sean2@adventure-works.com	2551 East Warner Road	Gilber
14	6305	29508	Mountain Toy Store	Marvin Allen	Mr.	447-555-0110	marvin0@adventure-works.com	First Colony Mall	Sugar
15	6306	29510	Designated Distributors	Cecil Allison	Mr.	699-555-0155	cecil0@adventure-works.com	254 Colonnade Road	Nepea
16	6307	29511	Old Bike Accessories	Cecilia Alvord	Ms.	855-555-0174	cecilia0@adventure-works.com	Rocky Mountain Plaza Outlet	Louis

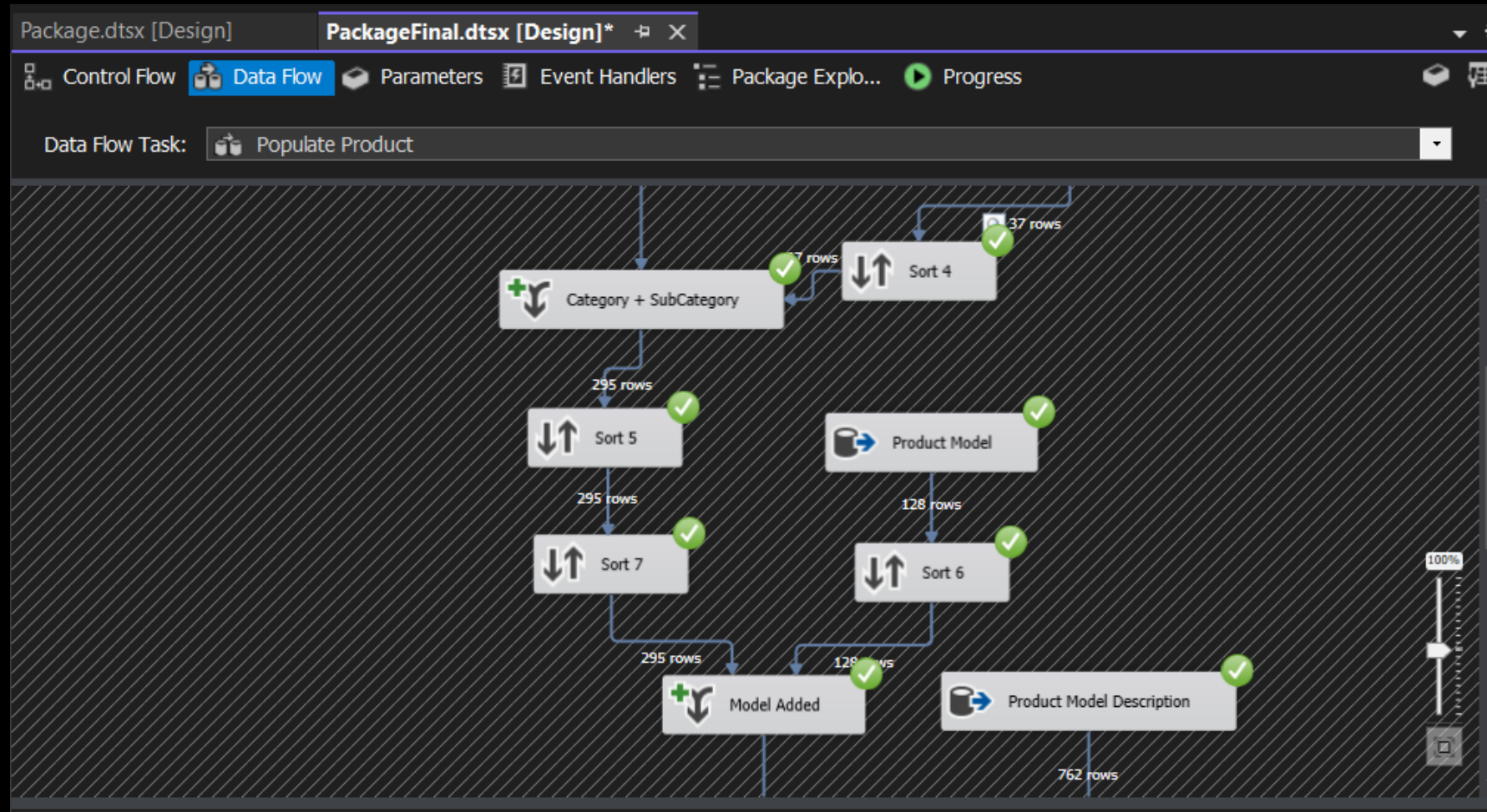
Query executed successfully. | localhost (16.0 RTM) | LAPTOP-6HO6SE43\Karim ... | AdventureWorks-DW | 00:00:00 | 407 rows

# Populate Product Data Flow

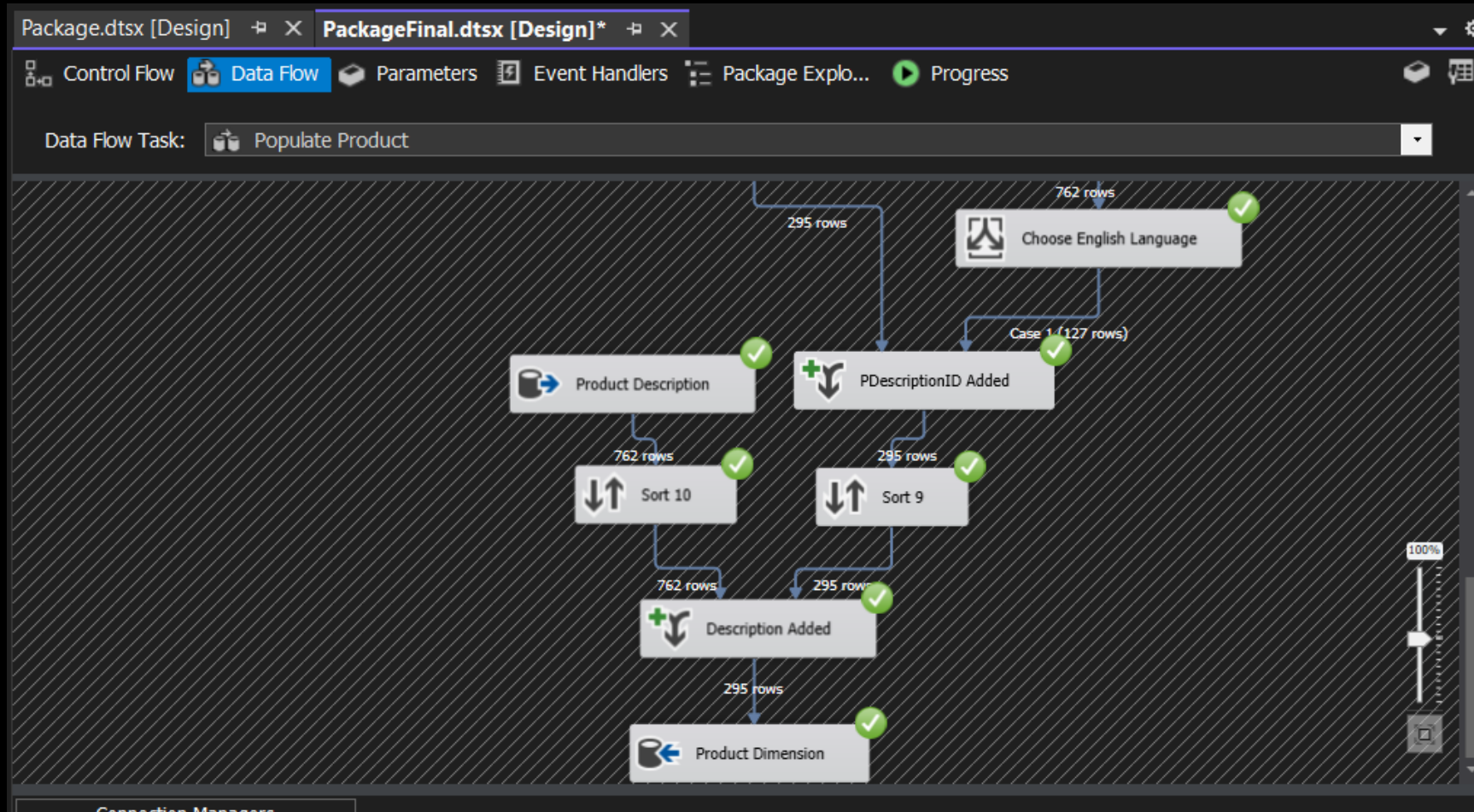




# Populate Product Data Flow



# Populate Product Data Flow



# DimProduct Populated Table (295 Rows)



SQLQuery1.sql - loc...\Karim Bassel (56))\*

```
SELECT *  
from DimProduct;
```

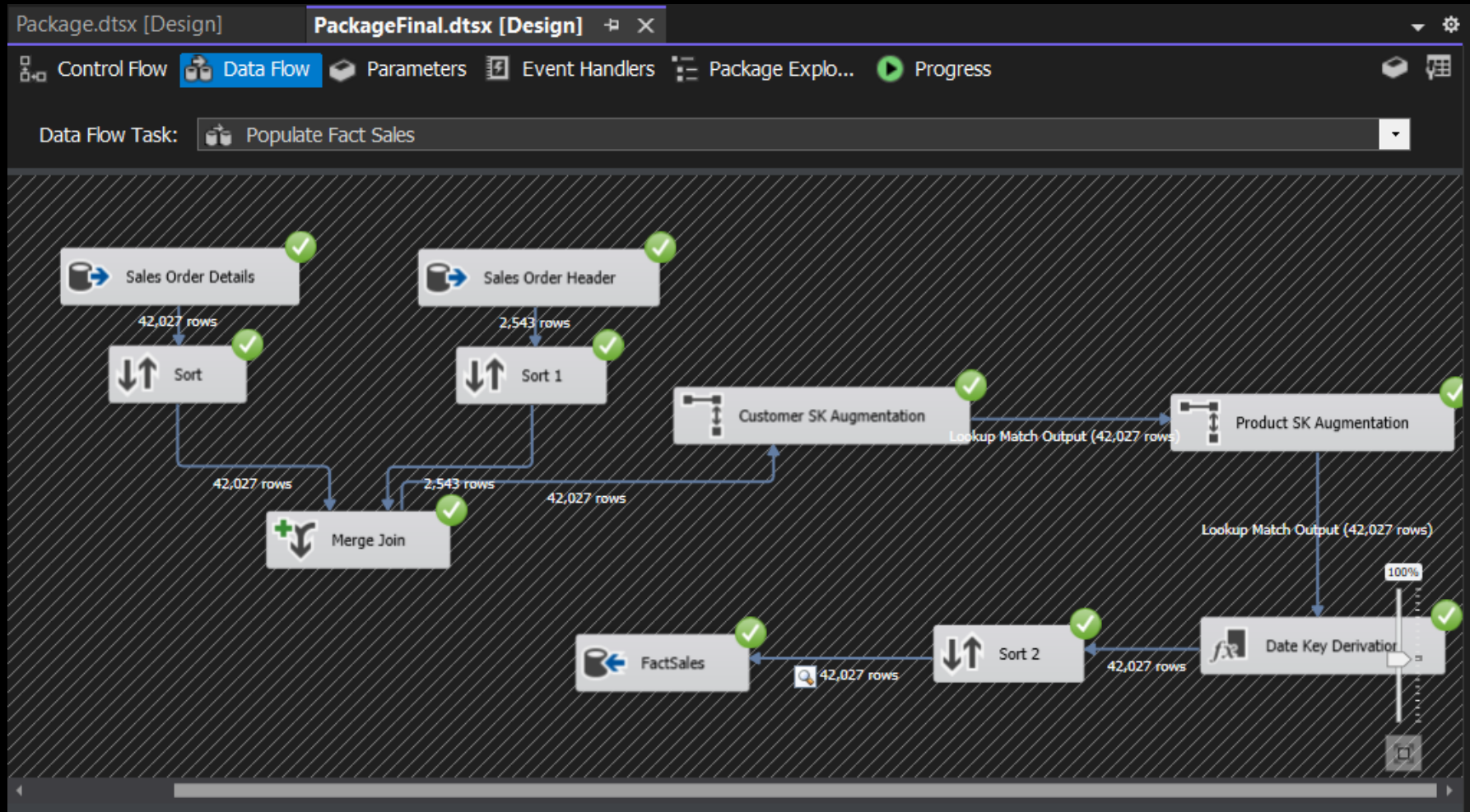
193 %

Results Messages

	ProductKey	ProductAltKey	Model	Category	SubCategory	Description	Size	Color	Cost	Price
1	9131	907	Rear Brakes	Components	Brakes	NULL	NULL	Silver	47.286	106.50
2	9132	994	LL Bottom Bracket	Components	Bottom Brackets	Chromoly steel.	NULL	NULL	23.9716	53.99
3	9133	995	ML Bottom Bracket	Components	Bottom Brackets	Aluminum alloy cups; large diameter spindle.	NULL	NULL	44.9506	101.24
4	9134	996	HL Bottom Bracket	Components	Bottom Brackets	Aluminum alloy cups and a hollow axle.	NULL	NULL	53.9416	121.49
5	9135	990	Mountain-500	Bikes	Mountain Bikes	Suitable for any type of riding, on or off-road. Fit...	42	Black	294.5797	539.99
6	9136	991	Mountain-500	Bikes	Mountain Bikes	Suitable for any type of riding, on or off-road. Fit...	44	Black	294.5797	539.99
7	9137	992	Mountain-500	Bikes	Mountain Bikes	Suitable for any type of riding, on or off-road. Fit...	48	Black	294.5797	539.99
8	9138	986	Mountain-500	Bikes	Mountain Bikes	Suitable for any type of riding, on or off-road. Fit...	44	Silver	308.2179	564.99
9	9139	989	Mountain-500	Bikes	Mountain Bikes	Suitable for any type of riding, on or off-road. Fit...	40	Black	294.5797	539.99
10	9140	987	Mountain-500	Bikes	Mountain Bikes	Suitable for any type of riding, on or off-road. Fit...	48	Silver	308.2179	564.99
11	9141	985	Mountain-500	Bikes	Mountain Bikes	Suitable for any type of riding, on or off-road. Fit...	42	Silver	308.2179	564.99
12	9142	984	Mountain-500	Bikes	Mountain Bikes	Suitable for any type of riding, on or off-road. Fit...	40	Silver	308.2179	564.99
13	9143	993	Mountain-500	Bikes	Mountain Bikes	Suitable for any type of riding, on or off-road. Fit...	52	Black	294.5797	539.99
14	9144	988	Mountain-500	Bikes	Mountain Bikes	Suitable for any type of riding, on or off-road. Fit...	52	Silver	308.2179	564.99
15	9145	983	Mountain-400-W	Bikes	Mountain Bikes	This bike delivers a high-level of performance ...	46	Silver	419.7784	769.49
16	9146	982	Mountain-400-W	Bikes	Mountain Bikes	This bike delivers a high-level of performance ...	42	Silver	419.7784	769.49
17	9147	980	Mountain-400-W	Bikes	Mountain Bikes	This bike delivers a high-level of performance ...	38	Silver	419.7784	769.49

Query executed successfully. | localhost (16.0 RTM) | LAPTOP-6HO6SE43\Karim ... | AdventureWorks-DW | 00:00:00 | 295 rows

# Populate Fact Sales Data Flow



# FactSales Populated Table (42,027 Rows)



SQLQuery1.sql - loc...\Karim Bassel (56))\*

```
SELECT *  
from FactSales;
```

193 %

Results Messages

	DateKey	CustomerKey	ProductKey	SalesOrderID	SalesOrderDetailID	OrderDate	Quantity	UnitPrice	Discount	LineTotal
1	20210531	29734	741	43661	24	2021-05-31 00:00:00.000	2	818.70	0.00	1637.40
2	20210531	29489	715	43680	195	2021-05-31 00:00:00.000	2	28.8404	0.00	57.6808
3	20210531	29489	711	43680	194	2021-05-31 00:00:00.000	1	20.1865	0.00	20.1865
4	20210531	29489	729	43680	193	2021-05-31 00:00:00.000	1	183.9382	0.00	183.9382
5	20210531	29489	707	43680	192	2021-05-31 00:00:00.000	4	20.1865	0.00	80.746
6	20210531	29489	738	43680	191	2021-05-31 00:00:00.000	2	178.5808	0.00	357.1616
7	20210531	29489	756	43680	190	2021-05-31 00:00:00.000	2	874.794	0.00	1749.588
8	20210531	29489	760	43680	189	2021-05-31 00:00:00.000	3	419.4589	0.00	1258.3767
9	20210531	29489	725	43680	196	2021-05-31 00:00:00.000	2	183.9382	0.00	367.8764
10	20210531	29761	760	43679	186	2021-05-31 00:00:00.000	1	419.4589	0.00	419.4589
11	20210531	29761	715	43679	188	2021-05-31 00:00:00.000	2	28.8404	0.00	57.6808
12	20210531	29761	770	43679	187	2021-05-31 00:00:00.000	2	419.4589	0.00	838.9178
13	20210531	29489	761	43680	198	2021-05-31 00:00:00.000	1	419.4589	0.00	419.4589
14	20210531	29889	770	43678	179	2021-05-31 00:00:00.000	1	419.4589	0.00	419.4589
15	20210531	29489	753	43680	199	2021-05-31 00:00:00.000	2	2146.962	0.00	4293.924
16	20210531	29489	765	43680	201	2021-05-31 00:00:00.000	3	419.4589	0.00	1258.3767
17	20210531	29489	775	43682	227	2021-05-31 00:00:00.000	4	2024.004	0.00	8096.076

Query executed successfully. | localhost (16.0 RTM) | LAPTOP-6HO6SE43\Karim ... | AdventureWorks-DW | 00:00:00 | 42,027 rows





# Phase 2

Data Cleaning & Transformation



# Transformation & Cleaning

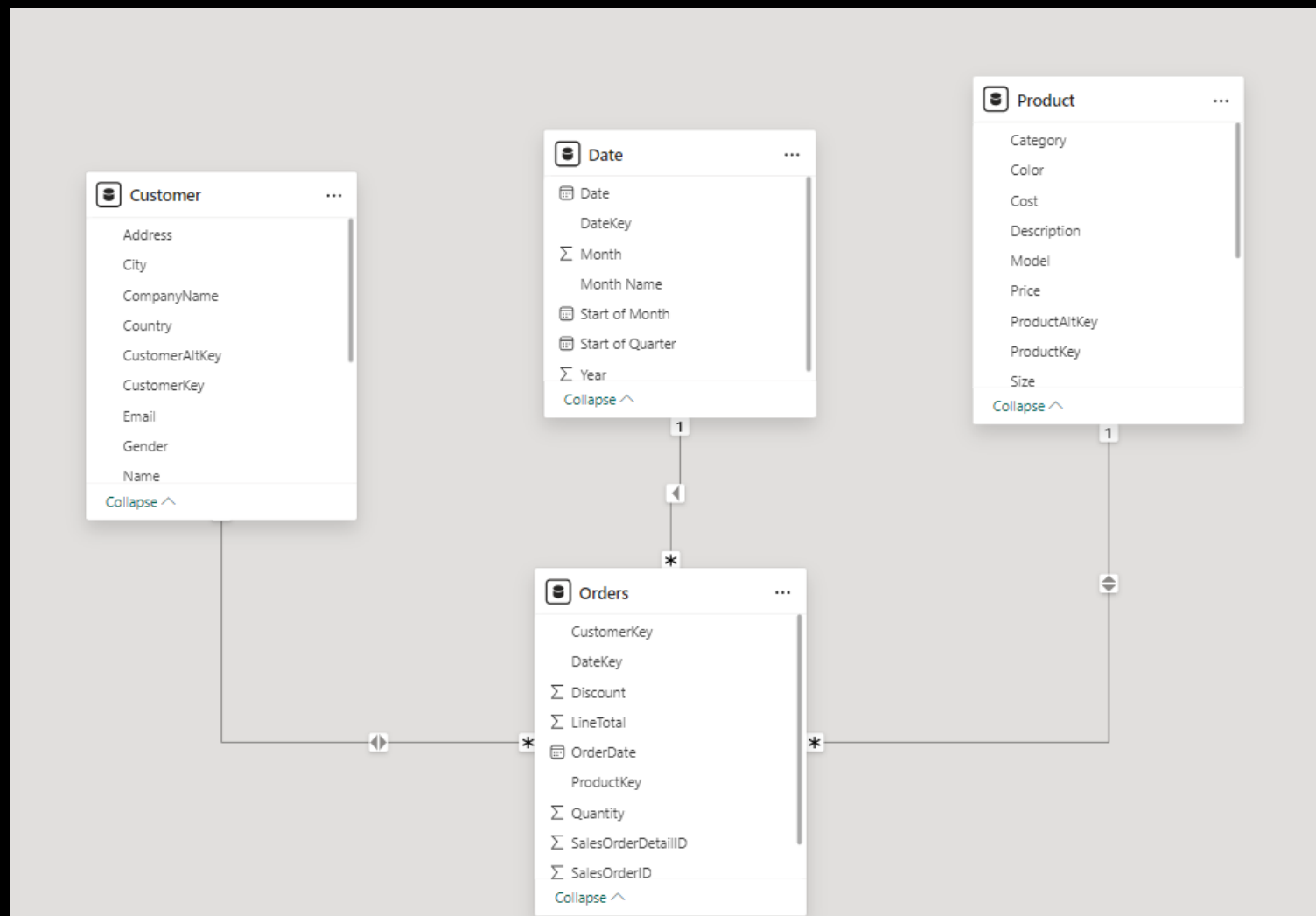
Field	Transformation
Customer Title	NULL → Space
Product Description	NULL → No Description Available
Product Size	NULL → Unspecified
Product Color	NULL → Unspecified



# Phase 3

Data Modeling

# Schema Design





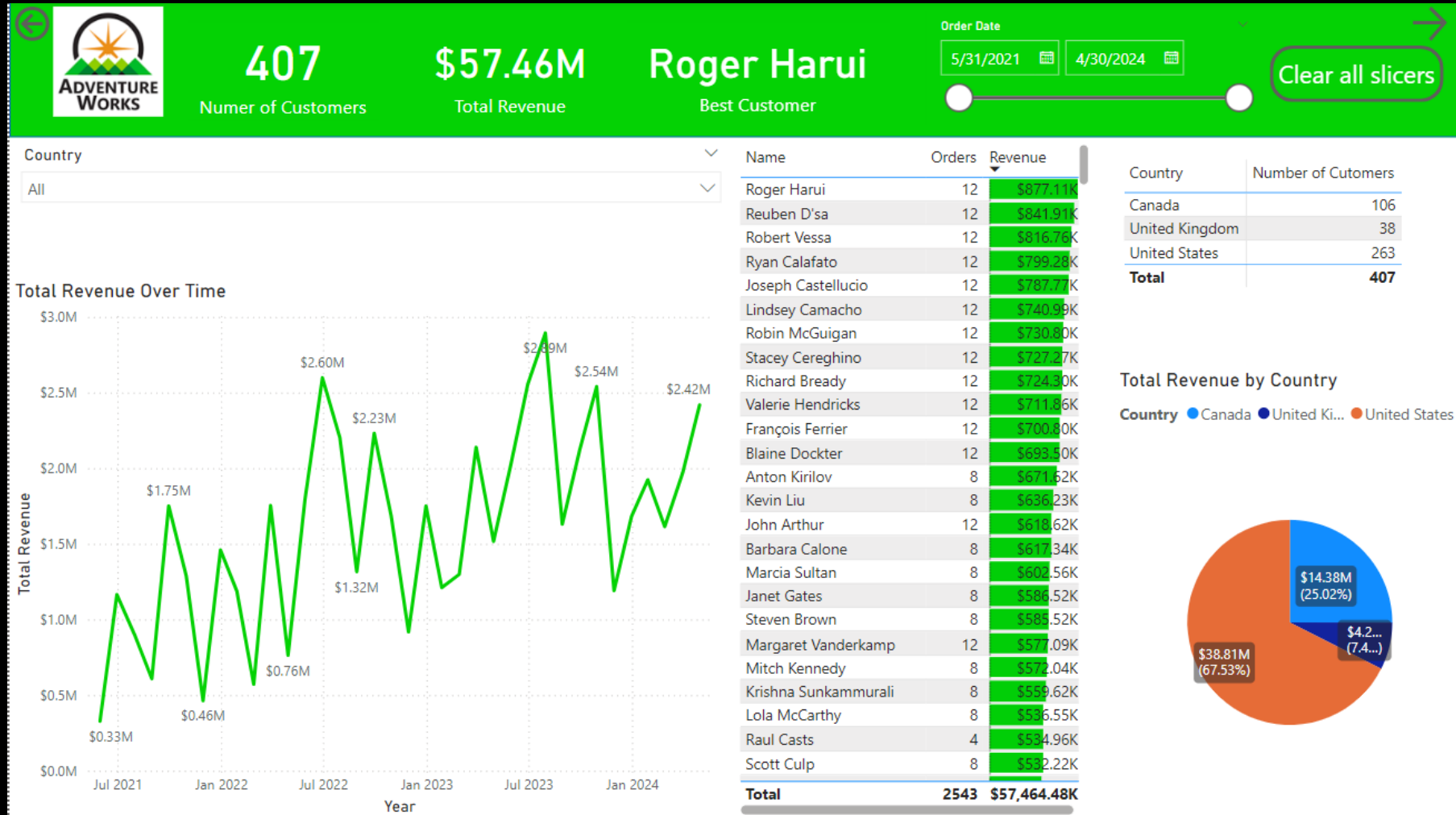


# Phase 4

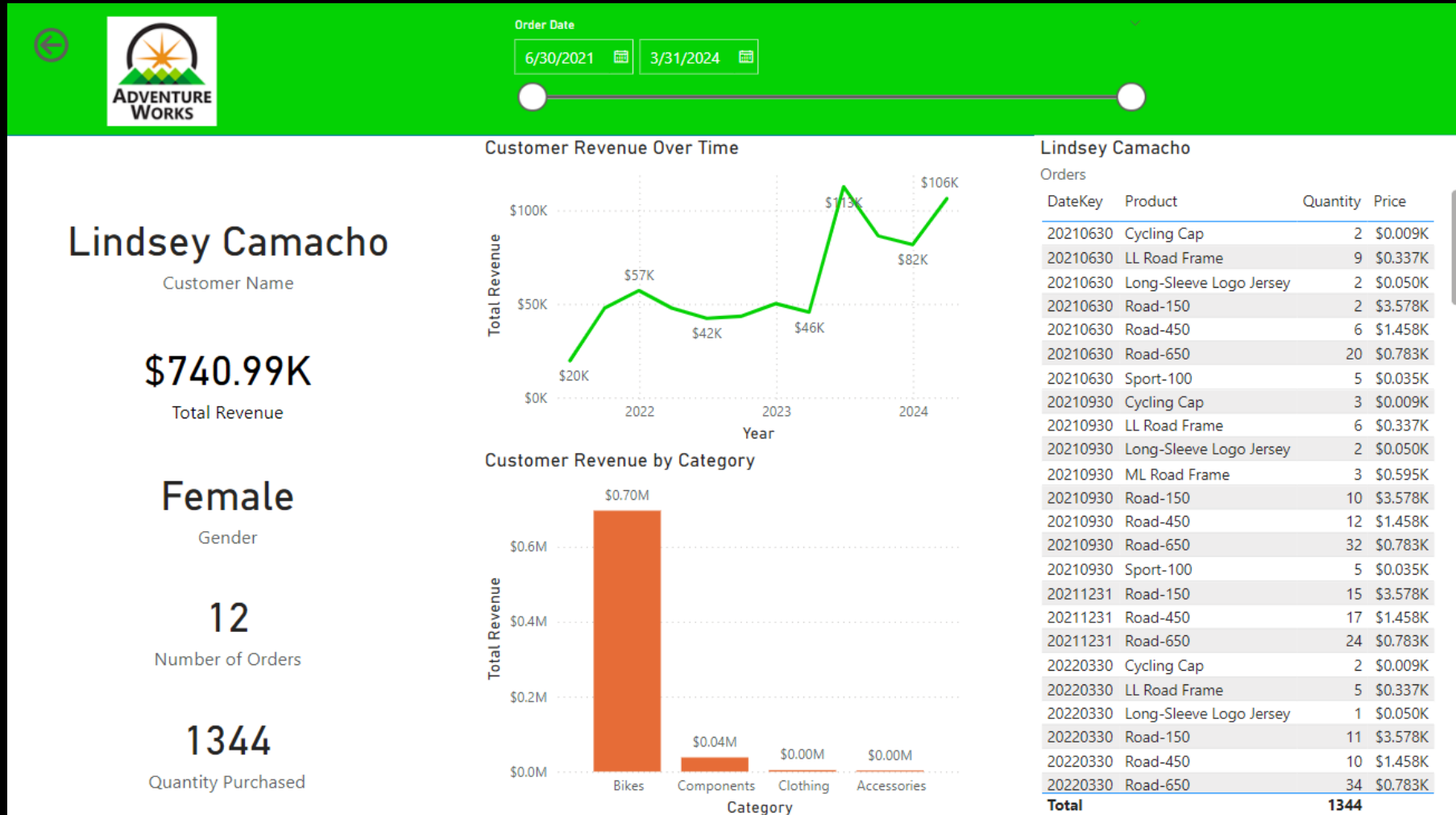
Data Visualization & Reporting



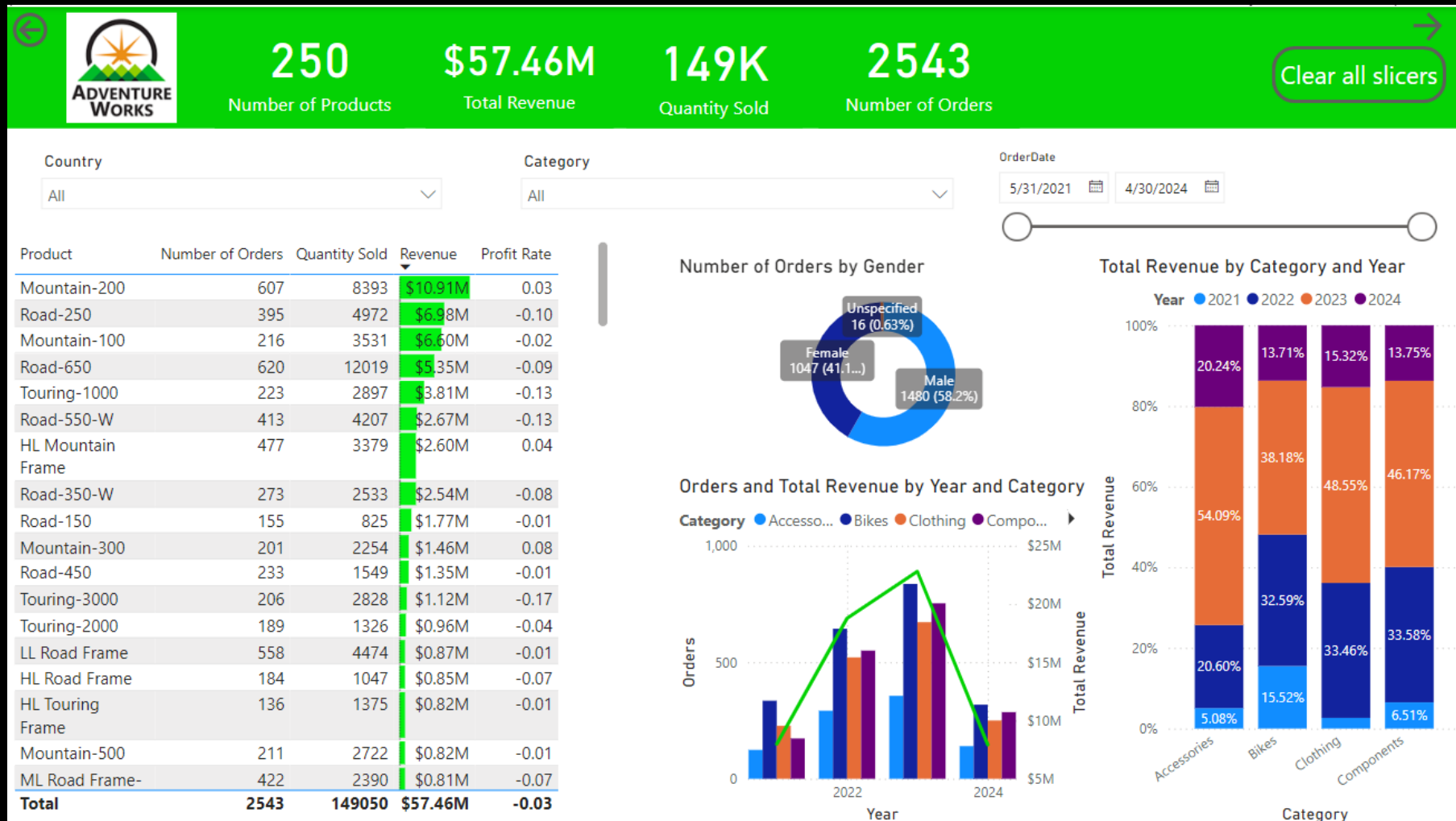
# Customer Report Page



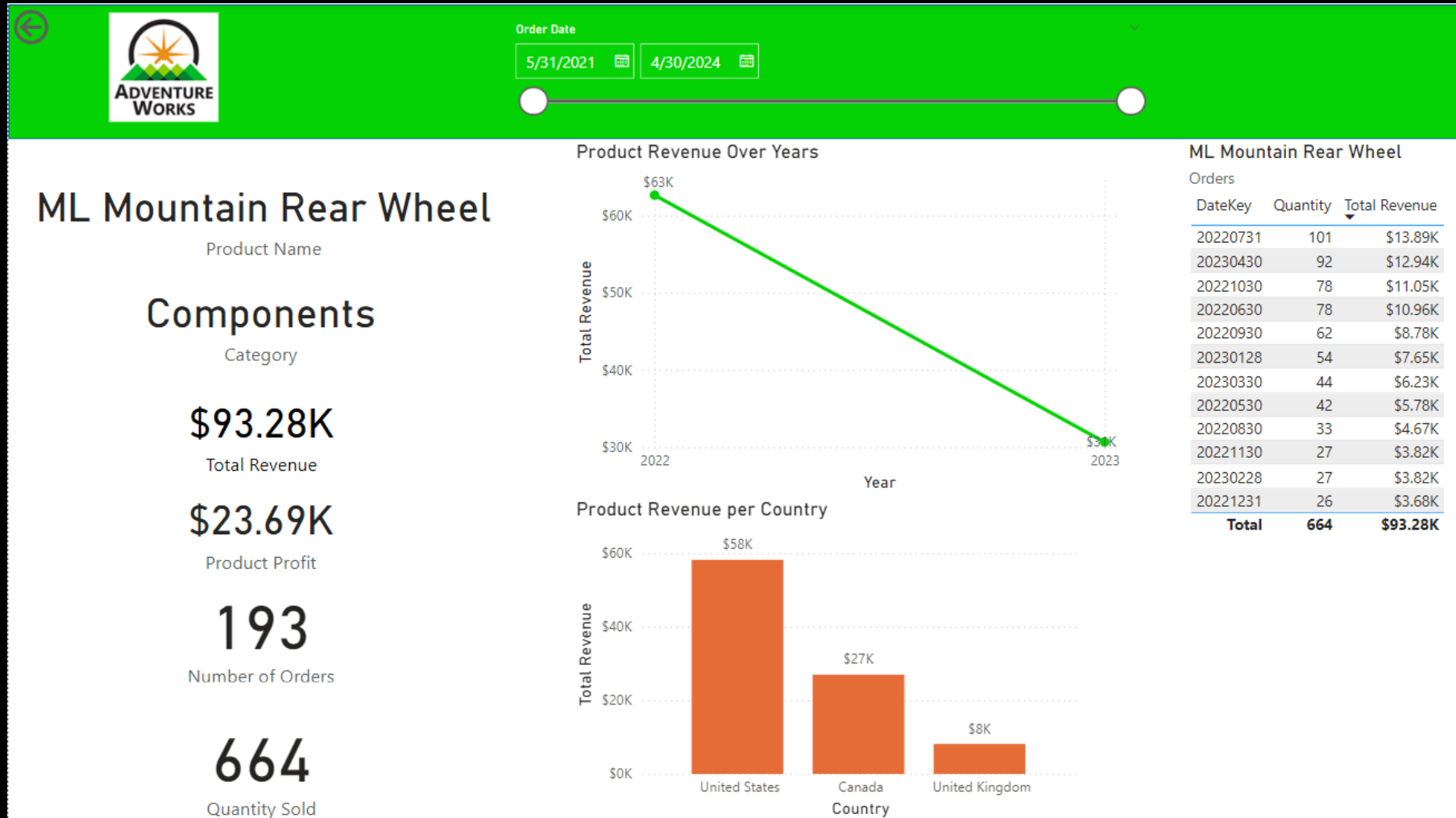
# Drill Through Customer Report Page



# Product Report Page



# Drill Through Product Report Page



# Overall Insights Report Page

