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## **BUSI 201: Business Data Analysis**

### **Final Exam**

#### **INSTRUCTIONS:**

- BUSI201-S2024-Final-S02-Workbook.xlsx is the companion workbook.
- The workbook consists of 9 worksheets.
- The quiz booklet contains 6 problems over 9 pages including this page.
- Good luck, and have a great Summer Break!

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**Problem #1. Functions Part 1**

Navigate to worksheet P01. Complete the tasks described below using functions. Any completed material that is deemed to be manually calculated will not receive any credit. All results may work as intended regardless of how the data is sorted or filtered.

Summary Statistics by Airport			
Airport	Count of Incidents	Total Cost	Average Cost
KORD	A	B	C
KMDW			
KMLI			
KPIA			

- **Task #1:**

- Fill the cells in the **Red Box: A** with the number of wildlife strike incidents by airport codes. For instance, cell 04 should display the total number of wildlife strike incidents in airport KORD.

- **Task #2:**

- Fill the cells in the **Blue Box: B** with the total cost incurred due to wildlife strike incidents by airport codes. For instance, cell P4 should display the total cost incurred in airport KORD.

- **Task #3:**

- Fill the cells in the **Orange Box: C** with the average cost (per incident) of wildlife strike incidents by airport codes. For instance, cell Q4 should display the average cost of wildlife strike incidents in airport KORD.

**Problem #2. Functions Part 2**

Navigate to worksheet P02. Complete the tasks described below using functions. Any completed material that is deemed to be manually calculated will not receive any credit. All results may work as intended regardless of how the data is sorted or filtered.

Incident Information Lookup			
Record ID	Cost (\$)	Airport	Amount of Damage
258727			
262533			
238449	A	B	C
316158			
246037			

- **Task #1:**

- Fill the cells in the **Red Box: A** with the price (dollar terms) of the corresponding Record IDs. For instance, cell 04 should display the cost of the incident with record number 258727.

- **Task #2:**

- Fill the cells in the **Blue Box: B** with the airport code corresponding to Record IDs. For instance, cell P4 should display the airport associated with the incident with record number 258727.

- **Task #3:**

- Fill the cells in the **Orange Box: C** with the amount of damage corresponding to Record IDs. For instance, cell 04 should display the amount of damage incurred by the incident with record number 258727.

### Problem #3. Sorting and Filtering

Complete the tasks described below using filtering / sorting across two worksheets, P03-1 and P03-2.

- **Task #1:**

- Navigate to worksheet P03-1. Sort the data such that the incident with the highest cost in airport KABE show up first, followed by the second most costly incident in KABE, ···, followed by the least costly incident in KABE, followed by the incident with the highest cost in airport KABI, followed by the second most costly incident in KABI, ···
- Hint: Airport Code should be sorted alphabetically.

FAA Wildlife Strike Data										
Record	Airport Code	Origin Sta	Aircraft Ty	Collision Tim	Phase of flight	Amount of Dama	Impact to flight	Cost	Altitude (Ft.)	Animal Category
259361	KABE	PA	Airplane	4/23/2009 9:22	Take-off run	Medium	Aborted Take-off	\$ 171,132.00	0	Birds
1761	KABE	PA	Airplane	9/14/2000 14:40	Climb	None	Precautioary Landing	\$ -	300	Birds
4255	KABE	PA	Airplane	8/26/2002 13:05	Landing Roll	None	Aborted Take-off	\$ -	0	Birds
9581	KABE	PA	Airplane	8/10/2005 18:05	Take-off run	None	None	\$ -	0	Birds
9677	KABE	PA	Airplane	10/11/2005 0:30	Approach	None	None	\$ -	2,000	Birds
<b>RESULTS OMITTED</b>										
357822	KABE	PA	Airplane	2/8/2015 0:10	Take-off run	None	None	\$ -	0	Birds
3579	KABI	TX	Airplane	5/20/2002 16:45	Climb	None	None	\$ -	10	Birds
<b>RESULTS OMITTED</b>										
335131	KABI	TX	Airplane	7/19/2013 7:12	Climb	None	None	\$ -	50	Birds
352210	KABQ	NM	Airplane	9/9/2014 10:12	Take-off run	None	Precautioary Landing	\$ 5,000.00	0	Birds
231484	KABQ	NM	Airplane	10/30/2004 15:30	Climb	Minor	None	\$ 3,403.00	9,500	Birds
300160	KABQ	NM	Airplane	1/25/2010 9:45	Take-off run	None	None	\$ 333.00	0	Birds

- **Task #2:**

- Navigate to worksheet P03-2. Filter the data such that only incidents that took place in an airport in Illinois (IL), which cost was greater than or equal to \$10,000 is visible to the reader.

FAA Wildlife Strike Data										
Record	Airport Code	Origin Sta	Aircraft Ty	Collision Tim	Phase of flight	Amount of Dama	Impact to flight	Cost	Altitude (Ft.)	Animal Category
203629	KPWK	IL	Airplane	12/8/2000 5:44	Approach	Substantial	None	\$ 506,217.00	1,600	Birds
207329	KPWK	IL	Airplane	4/18/2001 6:26	Landing Roll	Minor	None	\$ 21,131.00	0	Birds
207878	KUGN	IL	Airplane	10/23/2001 7:30	Take-off run	Substantial	None	\$ 176,089.00	0	Birds
208895	KUIN	IL	Airplane	10/20/2000 20:00	Take-off run	Substantial	Aborted Take-off	\$ 26,034.00	0	Terrestrial Mammals
214777	KMWA	IL	Airplane	12/8/2001 10:01	Climb	Substantial	Engine Shut Down	\$ 704,355.00	30	Birds
225581	KALN	IL	Airplane	8/4/2004 9:33	Take-off run	Medium	Aborted Take-off	\$ 131,462.00	0	Birds
225674	KMDW	IL	Airplane	9/29/2004 11:05	Approach	Medium	Other	\$ 15,619.00	10	Birds
225684	KMWA	IL	Airplane	6/3/2003 20:46	Landing Roll	Substantial	Other	\$ 121,413.00	0	Terrestrial Mammals
227121	KUGN	IL	Airplane	5/14/2004 8:15	Take-off run	Substantial	Aborted Take-off	\$ 260,320.00	0	Birds
227127	KORD	IL	Airplane	10/24/2004 22:25	Take-off run	Medium	Precautioary Landing	\$ 43,734.00	0	Birds

**Problem #4. Conditional Formatting**

Complete the tasks described below across two worksheets, P04-1 and P04-2.

- **Task #1:**

- Navigate to worksheet P04-1. Apply conditional formatting to replicate the results in the **Red Box**. The cutoffs for each icon is as follows:
  - \* Green Upward Triangle: Altitude is strictly greater than 0.
  - \* Yellow Dash: Altitude is greater than or equal to 0.
  - \* Red Downward Triangle: Altitude is strictly less than 0.

FAA Wildlife Strike Data											
Record ID	Airport Code	Origin State	Aircraft Type	Collision Time	Phase of flight	Amount of Damage	Impact to flight	Cost	Altitude (Ft.)	Altitude (Visual)	Animal Category
1164	KAFW	TX	Airplane	10/11/2001 16:50	Climb	None	Precautionary Landing	\$	-	25	▲
1184	KFOE	KS	Airplane	7/19/2000 16:50	Take-off run	None	Aborted Take-off	\$	-	0	▬
1190	KCNW	TX	Airplane	2/8/2001 15:30	Take-off run	None	None	\$	-	0	▬
1297	KMRB	WV	Airplane	7/2/2002 21:50	Approach	None	Precautionary Landing	\$	-	900	▲
1429	KMRB	WV	Helicopter	8/6/2002 20:15	Take-off run	None	None	\$	-	0	▬
1503	KMEI	MS	Airplane	2/14/2001 20:30	Approach	None	None	\$	-	1,700	▲
1504	KABQ	NM	Airplane	2/14/2001 11:00	Landing Roll	None	None	\$	-	0	▬
1568	KOQU	RI	Airplane	10/13/2001 14:00	Landing Roll	None	None	\$	-	10	▲
1727	KBHM	AL	Airplane	6/14/2001 15:30	Approach	None	None	\$	-	500	▲

- **Task #2:**

- Navigate to worksheet P04-2. Apply conditional formatting so that incidents where the Impact to flight was “None” has a green background fill. You do not need to exactly match the colors.

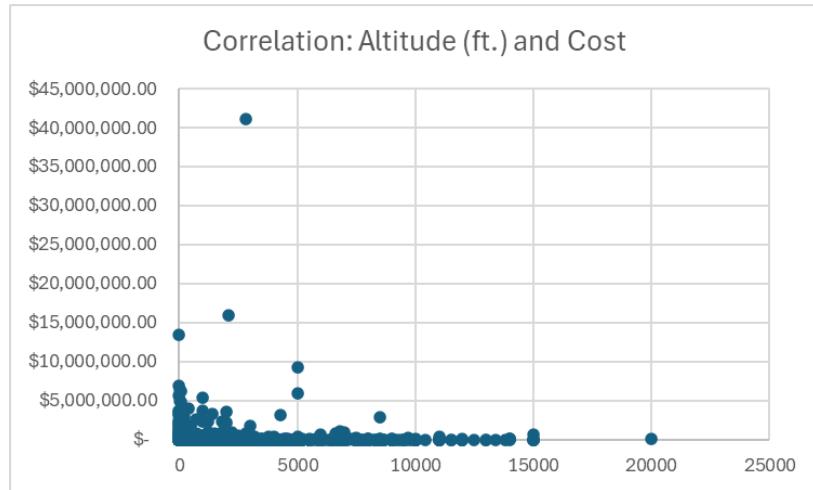
FAA Wildlife Strike Data											
Record ID	Airport Code	Origin State	Aircraft Type	Collision Time	Phase of flight	Amount of Damage	Impact to flight	Cost	Altitude (Ft.)	Animal Category	
1164	KAFW	TX	Airplane	10/11/2001 16:50	Climb	None	Precautionary Landing	\$	-	25	Birds
1184	KFOE	KS	Airplane	7/19/2000 16:50	Take-off run	None	Aborted Take-off	\$	-	0	Birds
1190	KCNW	TX	Airplane	2/8/2001 15:30	Take-off run	None	None	\$	-	0	Birds
1297	KMRB	WV	Airplane	7/2/2002 21:50	Approach	None	Precautionary Landing	\$	-	900	Birds
1429	KMRB	WV	Helicopter	8/6/2002 20:15	Take-off run	None	None	\$	-	0	Birds
1503	KMEI	MS	Airplane	2/14/2001 20:30	Approach	None	None	\$	-	1,700	Birds
1504	KABQ	NM	Airplane	2/14/2001 11:00	Landing Roll	None	None	\$	-	0	Birds
1568	KOQU	RI	Airplane	10/13/2001 14:00	Landing Roll	None	None	\$	-	10	Birds
1727	KBHM	AL	Airplane	6/14/2001 15:30	Approach	None	None	\$	-	500	Birds
1761	KABE	PA	Airplane	9/14/2000 14:40	Climb	None	Precautionary Landing	\$	-	300	Birds

**Problem #5. Charts & PivotCharts**

Navigate to worksheet P05. Use the tables in the worksheet to complete the tasks described below.

- **Task #1:**

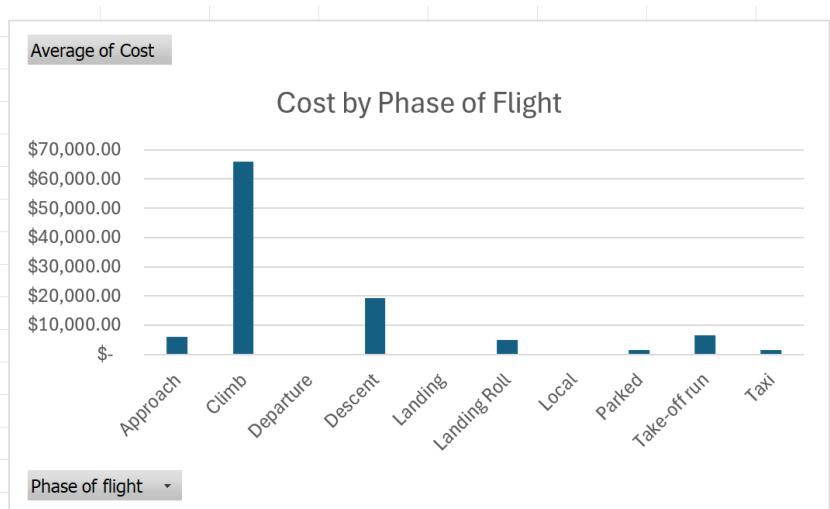
- Replicate the chart displayed below as closely as possible.
  - \* Chart Type, Chart Title, Data Selection



- **Task #2:**

- Replicate the PivotChart displayed below (on a new worksheet) as closely as possible.
  - \* Chart Type, Chart Title, Chart Elements

Row Labels	Average of Cost
Approach	\$ 5,915.72
Climb	\$ 65,910.76
Departure	\$ -
Descent	\$ 19,207.51
Landing	\$ -
Landing Roll	\$ 4,840.37
Local	\$ -
Parked	\$ 1,439.48
Take-off run	\$ 6,507.13
Taxi	\$ 1,575.68
<b>Grand Total</b>	<b>\$ 12,732.12</b>



**Problem #6. PivotTables**

Use the tables in worksheets P06-1 and P06-2 to complete the tasks described below.

- **Task #1:**

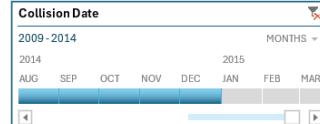
- Replicate the following PivotTable displayed below as closely as possible on the existing worksheet P06-1.
  - \* Rows, Columns, Values, Grouping, Formatting, Layout.

Average of Cost Impact to flight						
Altitude (Ft.)	Aborted Take-off	Engine Shut Down	None	Other	Precautionary Landing	
0-1999	\$ 35,196.98	\$ 411,350.14	\$ 1,645.12	\$ 55,753.61	\$	53,367.48
2000-3999		\$ 453,164.63	\$ 7,928.14	\$ 1,055,878.71	\$	237,435.53
4000-5999		\$ 4,557,047.25	\$ 4,990.54	\$ 26,847.75	\$	23,629.53
6000-7999		\$ 4,111.00	\$ 14,976.98	\$ 104,223.75	\$	231,319.81
8000-9999			\$ 11,416.05	\$ -	\$	266,906.36
10000-11999			\$ 21,960.17	\$ 18,520.00	\$	41,885.00
12000-13999			\$ 6,801.75		\$	-
14000-15999			\$ 1,597.20		\$	179,208.50
18000-20000			\$ 72,610.00			
<b>Grand Total</b>	<b>\$ 35,196.98</b>	<b>\$ 524,750.32</b>	<b>\$ 2,005.69</b>	<b>\$ 132,735.32</b>	<b>\$</b>	<b>69,812.56</b>

- **Task #2:**

- Replicate the following PivotTables and Timeline displayed below as closely as possible on the existing worksheet P06-2.
- The timeline must be capable of filtering data for both PivotTables simultaneously.

Sum of Cost Column Labels						
Row Labels	Aborted Take-off	Engine Shut Down	None	Other	Precautionary Landing	Grand Total
Bats		\$ 4,355.00	\$ -	\$ -	\$ -	\$ 4,355.00
Birds	\$ 3,168,651.00	\$ 22,475,817.00	\$ 16,393,064.00	\$ 44,416,916.00	\$ 58,709,851.00	\$ 145,164,299.00
Reptiles	\$ -	\$ -	\$ -		\$ -	\$ -
Terrestrial Man	\$ 120,473.00	\$ -	\$ 709,925.00	\$ 852,314.00	\$ 153,843.00	\$ 1,836,555.00
<b>Grand Total</b>	<b>\$ 3,289,124.00</b>	<b>\$ 22,475,817.00</b>	<b>\$ 17,107,344.00</b>	<b>\$ 45,269,230.00</b>	<b>\$ 58,863,694.00</b>	<b>\$ 147,005,209.00</b>



Sum of Cost Column Labels						
Row Labels	Aborted Take-off	Engine Shut Down	None	Other	Precautionary Landing	Grand Total
AL	\$ -	\$ 1,768.00	\$ -	\$ -	\$ -	\$ 1,768.00
AR	\$ -	\$ 5,876,831.00	\$ 190,413.00	\$ -	\$ -	\$ 6,067,244.00
AZ	\$ 20,534.00	\$ -	\$ 11,595.00	\$ 70,961.00	\$ 24,251.00	\$ 127,341.00
CA	\$ 417,826.00	\$ 1,082,581.00	\$ 2,100,182.00	\$ 621,066.00	\$ 9,168,321.00	\$ 13,389,976.00
CO	\$ -	\$ 5,585,673.00	\$ 414,572.00	\$ 17,300.00	\$ 20,260,583.00	\$ 26,278,128.00
CT	\$ 1,027.00	\$ -	\$ 37,168.00	\$ -	\$ 12,649.00	\$ 50,844.00
DC	\$ -	\$ -	\$ 217,719.00	\$ -	\$ 859,095.00	\$ 1,076,814.00
DE	\$ -	\$ -	\$ 751.00	\$ -	\$ -	\$ 751.00

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