Module 2 Challenge: Stock Code

```vba
Option Explicit

Sub Stock_Sort()

    Const TICKER_COL As Integer = 1

    Const OPEN_COL As Integer = 3

    Const CLOSE_COL As Integer = 6

    Const VOL_COL As Integer = 7

    Const FIRST_DATA_ROW As Integer = 2

    'Define variables


    Dim Ticker As String

    Dim Open_Value As Double

    Dim Close_Value As Double

    Dim Total_Volume As LongLong

    Dim Yearly_Change As Double

    Dim Output_Row As Long

    Dim Input_Row As Long

    Dim Change_Frac As Double

    Dim Max_Increase As Double

    Dim Max_Decrease As Double

    Dim Max_Volume As LongLong

    Dim Max_Decrease_Ticker As String

    Dim Max_Increase_Ticker As String

    Dim Max_Volume_Ticker As String

    Dim ws As Worksheet


    'Loop through each worksheet

    For Each ws In Worksheets


     'print the label headings in each worksheet

    ws.Range("I1").Value = "Ticker"
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ws.Range("J1") = "Yearly Change"

ws.Range("K1") = "Percent Change"

ws.Range("L1") = "Total Stock Volume"

ws.Range("O1") = "Ticker"

ws.Range("P1") = "Value"

ws.Range("N2") = "Greatest % Increase"

ws.Range("N3") = "Greatest % Decrease"

ws.Range("N4") = "Greatest Total Volume"


'Prepare for first Stock

Open_Value = Cells(FIRST_DATA_ROW, OPEN_COL).Value

Yearly_Change = 0

Output_Row = FIRST_DATA_ROW

Max_Increase = 0

Max_Decrease = 0

Max_Volume = 0


For Input_Row = FIRST_DATA_ROW To 800000

    Ticker = Cells(Input_Row, TICKER_COL).Value

    Total_Volume = Total_Volume + Cells(Input_Row, VOL_COL).Value


    'Last row of current stock

    If Cells(Input_Row + 1, TICKER_COL).Value <> Ticker Then


        'Input

        Close_Value = Cells(Input_Row, CLOSE_COL)


        'Calculations

        Yearly_Change = Close_Value - Open_Value

        Change_Frac = Yearly_Change / Open_Value

        Total_Volume = Total_Volume + Cells(Input_Row, VOL_COL).Value
```

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'IS this a new "BEST"?

If Change_Frac < Max_Decrease Then

    Max_Decrease = Change_Frac

    Max_Decrease_Ticker = Ticker


ElseIf Change_Frac > Max_Increase Then

    Max_Increase = Change_Frac

    Max_Increase_Ticker = Ticker


End If


'DEBUG TOTAL VOLUME!!!

If Total_Volume > Max_Volume Then

    Max_Volume = Total_Volume

    Max_Volume_Ticker = Ticker

End If


'Output

Range("I" & Output_Row).Value = Ticker

Range("J" & Output_Row).Value = Yearly_Change

Range("K" & Output_Row).Value = FormatPercent(Change_Frac)

Range("L" & Output_Row).Value = Total_Volume


'Color negative changes as red and positive and zero changes as green

If Yearly_Change < 0 Then

    Range("J" & Output_Row).Interior.ColorIndex = 3

    'Cells(Output_Row, 10).Interior.ColorIndex = 3

ElseIf Yearly_Change > 0 Then

    Range("J" & Output_Row).Interior.ColorIndex = 4

    'Cells(Output_Row, 10).InteriorColorIndex = 4
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        End If


        'Prepare for Next Stock

        Open_Value = Cells(Input_Row + 1, OPEN_COL).Value


        Output_Row = Output_Row + 1

        Yearly_Change = 0

        Total_Volume = 0


      End If


    Next Input_Row


    Range("O2").Value = Max_Increase_Ticker

    Range("P2").Value = FormatPercent(Max_Increase)

    Range("O3").Value = Max_Decrease_Ticker

    Range("P3").Value = FormatPercent(Max_Decrease)

    Range("O4").Value = Max_Volume_Ticker

    Range("P4").Value = Max_Volume


    Next ws

    MsgBox "done"
End Sub
```

Results: Snapshots of each year:

Table 1 (2018)

<ticker>	<date>	<open>	<high>	<low>	<close>	<vol>		Ticker	Yearly Change	Percent Change	Total Stock Volume			Ticker	Value
AAB	20180102	24.44	24.56	24.44	24.47	261879		AAB	-3.12	-12.77%	765670355		Greatest % Increase	THB	141.42%
AAB	20180103	24.45	24.45	24.22	24.28	15721045		AAF	-0.44	-7.45%	2348323347		Greatest % Decrease	RKS	-90.02%
AAB	20180104	24.27	24.36	24.27	24.28	5954		AAR	-0.32	-17.11%	44198689		Greatest Total Volume	QKN	1.69E+12
AAB	20180105	24.24	24.33	24.22	24.33	58161100		AAT	5.33	42.44%	1121805				
AAB	20180108	24.28	24.72	24.28	24.72	267347		ABJ	0.2	0.47%	866724230				
AAB	20180109	24.73	24.73	24.64	24.64	1129348		ABK	1.61	4.80%	10488673				
AAB	20180110	24.62	24.78	24.57	24.68	5453423		ABKV	2.22	11.57%	5333291929				
AAB	20180111	24.68	24.85	24.68	24.85	14391		ABM	-1.16	-12.96%	1036331571				
AAB	20180112	24.86	24.86	24.71	24.86	13701		ACJ	-0.57	-3.70%	6172927				
AAB	20180116	24.85	24.93	24.79	24.79	101867		ACYQ	2.04	4.79%	237194736				
AAB	20180117	24.81	24.85	24.68	24.69	515155		ADB	-2.4	-8.34%	41980904				
AAB	20180118	24.67	24.86	24.67	24.86	657377		ADF	0.36	2.74%	13907972792				
AAB	20180119	24.89	24.93	24.71	24.71	1106987		AEL	2.33	5.11%	4339962104				
AAB	20180122	24.66	24.9	24.66	24.85	1418811		AEV	2.79	11.71%	844293				
AAB	20180123	24.87	24.94	24.8	24.84	52744		AEY	-0.08	-6.96%	8310007				
AAB	20180124	24.83	24.83	24.56	24.56	3545845		AFZ	0.35	2.70%	175945675				
AAB	20180125	24.58	24.66	24.54	24.66	3119820		AGF	-1.53	-2.46%	1904454491				
AAB	20180126	24.71	24.8	24.67	24.67	190060		AGJ	-0.17	-2.75%	1252212492				
AAB	20180129	24.67	24.7	24.62	24.68	594904		AGM	-0.21	-2.92%	36443823				
AAB	20180130	24.59	24.64	24.53	24.56	2373		AHAO	-0.16	-1.36%	6211916998				
AAB	20180131	24.53	24.53	24.41	24.47	134187		AHB	-4.78	-15.80%	25662477575				
AAB	20180201	24.48	24.66	24.48	24.66	372501		AIC	28.45	23.58%	3412876711				
AAB	20180202	24.65	24.65	24.54	24.58	5314		AIQ	0.2	1.71%	15479657				
AAB	20180205	24.55	24.6	24.2	24.2	336163		AIQF	0.01	0.47%	913297376				
AAB	20180206	24.25	24.43	24.24	24.36	7973461		AIQK	4.9	26.78%	317365143				
AAB	20180207	24.37	24.49	24.37	24.49	230014		AJA	0.48	21.72%	176691517				
AAB	20180208	24.46	24.46	24.28	24.28	641540		AJJ	0.69	0.65%	1852789				
AAB	20180209	24.4	24.45	24.23	24.29	21786910		AJK	2.12	28.61%	4706223578				
AAB	20180212	24.31	24.31	24.02	24.05	50989		AJL	0.15	1.16%	301498723				
AAB	20180213	24	24	23.93	23.97	63617		AJR	0.09	0.49%	534773547				
AAB	20180214	24.02	24.07	23.89	23.91	1745		AJS	5.2	29.08%	910394107				
AAB	20180215	23.9	23.93	23.85	23.88	20257		AKKV	-0.14	-1.70%	1026946671				

Table 2 (2019)

<ticker>	<date>	<open>	<high>	<low>	<close>	<vol>		Ticker	Yearly Change	Percent Change	Total Stock Volume			Ticker	Value
AAB	20190102	21.31	21.37	21.23	21.23	10958		AAB	2.14	10.04%	241994367		Greatest % Increase	RYU	190.03%
AAB	20190103	21.19	21.2	21.06	21.1	2171964		AAF	-0.45	-8.23%	2824090800		Greatest % Decrease	RKS	-91.60%
AAB	20190104	21.15	21.17	20.96	21.03	3675		AAR	0.28	18.06%	122509891		Greatest Total Volume	ZQD	4.37E+12
AAB	20190107	21.06	21.07	21.03	21.06	1325		AAT	-4.18	-23.54%	971350				
AAB	20190108	21.04	21.04	20.83	20.83	14382		ABJ	2.55	5.95%	6124746568				
AAB	20190109	20.91	21.11	20.91	21.03	7870		ABK	3.79	10.78%	13093083				
AAB	20190110	21	21.29	21	21.29	1225387		ABKV	3.94	18.33%	4029781674				
AAB	20190111	21.31	21.39	21.31	21.36	3404027		ABM	-0.22	-2.82%	582589656				
AAB	20190114	21.34	21.41	21.3	21.33	25837		ACJ	0.4	2.70%	5523898				
AAB	20190115	21.34	21.36	21.24	21.3	105596		ACYQ	-1.49	-3.34%	191193118				
AAB	20190116	21.32	21.43	21.29	21.35	1094876		ADB	-1.04	-3.95%	31253451				
AAB	20190117	21.27	21.37	21.27	21.27	203755		ADF	0.55	4.07%	8333406834				
AAB	20190118	21.18	21.32	21.18	21.3	9423		AEL	-0.09	-0.19%	12723995348				
AAB	20190122	21.31	21.31	21.12	21.12	220280		AEV	15.31	57.77%	312299				
AAB	20190123	21.14	21.24	21.14	21.24	5214		AEY	0.34	31.78%	16636608				
AAB	20190124	21.23	21.24	21.11	21.13	12912		AFZ	-0.09	-0.68%	60400658				
AAB	20190125	21.16	21.22	21.12	21.15	235681		AGF	-6.65	-10.97%	1814983630				
AAB	20190128	21.2	21.2	21.07	21.07	555		AGJ	3.3	55.00%	728420922				
AAB	20190129	21.14	21.14	21.01	21.03	557731		AGM	-0.38	-5.47%	48440276				
AAB	20190130	21.08	21.17	21.08	21.1	526084		AHAO	-0.78	-6.70%	10127932473				
AAB	20190131	21.03	21.11	20.95	21.11	186		AHB	-1.97	-7.74%	9231064100				
AAB	20190201	21.09	21.12	21.04	21.05	925610		AIC	-22.67	-15.28%	6835702332				
AAB	20190204	21.03	21.03	20.79	20.81	71848		AIQ	-0.12	-1.01%	9122535				
AAB	20190205	20.77	20.82	20.77	20.8	166496		AIQF	0.4	18.78%	894425345				
AAB	20190206	20.69	20.77	20.64	20.73	6969		AIQK	-0.38	-1.64%	305073856				
AAB	20190207	20.73	20.75	20.7	20.74	7588084		AJA	-0.08	-2.97%	156530087				
AAB	20190208	20.72	20.79	20.67	20.79	7134		AJJ	4.1	3.84%	550536				
AAB	20190211	20.81	20.83	20.71	20.83	33916		AJK	1.19	12.49%	3636215876				
AAB	20190212	20.8	20.91	20.8	20.91	2184		AJL	1.2	9.16%	224274029				
AAB	20190213	20.86	20.92	20.86	20.87	123943		AJR	-1.99	-10.66%	276019915				
AAB	20190214	20.9	20.9	20.8	20.81	677		AJS	-5.76	-24.85%	1278732776				
AAB	20190215	20.76	20.86	20.75	20.86	188376		AKKV	0.7	8.64%	989089465				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	<ticker>	<date>	<open>	<high>	<low>	<close>	<vol>		Ticker	Yearly Change	Percent Change	Total Stock Volume			Ticker	Value
2	AAB	20200102	23.43	23.57	23.43	23.57	28522		AAB	-0.17	-0.73%	455751785		Greatest % Increase	YDI	188.76%
3	AAB	20200103	23.52	23.61	23.43	23.44	1399		AAF	0.18	3.59%	2081235515		Greatest % Decrease	VNG	-89.05%
4	AAB	20200106	23.46	23.48	23.37	23.39	2953		AAR	0.42	22.95%	40069552		Greatest Total Volume	QKN	3.45E+12
5	AAB	20200107	23.31	23.47	23.28	23.47	64755		AAT	-2.76	-20.19%	843433				
6	AAB	20200108	23.4	23.61	23.4	23.58	8534		ABJ	2.41	5.29%	1228674457				
7	AAB	20200109	23.6	23.71	23.6	23.71	62083971		ABK	-0.73	-1.87%	9527702				
8	AAB	20200110	23.74	23.76	23.52	23.55	7524		ABKV	-3.53	-13.83%	4454906334				
9	AAB	20200113	23.57	23.79	23.57	23.77	76550		ABM	-0.91	-11.99%	593678879				
10	AAB	20200114	23.83	23.88	23.67	23.67	5781390		ACJ	-0.45	-2.96%	6083643				
11	AAB	20200115	23.64	23.83	23.61	23.76	53283		ACYQ	0.31	0.72%	286136467				
12	AAB	20200116	23.8	23.98	23.8	23.98	2796350		ADB	-0.68	-2.69%	34556725				
13	AAB	20200117	23.9	23.95	23.79	23.82	809847		ADF	2.18	15.53%	22708796945				
14	AAB	20200121	23.78	23.78	23.61	23.65	37674		AEL	3.33	6.96%	5178961748				
15	AAB	20200122	23.67	23.68	23.54	23.68	681		AEV	-8.75	-20.85%	196146				
16	AAB	20200123	23.59	23.68	23.56	23.58	14342		AEY	0.08	5.67%	14200140				
17	AAB	20200124	23.51	23.62	23.5	23.59	37839		AFZ	0.3	2.27%	33096139				
18	AAB	20200127	23.58	23.73	23.58	23.73	315691		AGF	0.25	0.46%	2613894504				
19	AAB	20200128	23.8	23.81	23.65	23.65	37896		AGJ	-1.83	-19.57%	470306682				
20	AAB	20200129	23.64	23.7	23.51	23.59	122379		AGM	0.26	3.96%	291151995				
21	AAB	20200130	23.58	23.58	23.31	23.32	2156		AHAO	0.21	1.93%	5606594488				
22	AAB	20200131	23.38	23.53	23.38	23.53	6958347		AHB	0.94	4.01%	24467496677				
23	AAB	20200203	23.53	23.62	23.46	23.62	19206		AIC	-2.47	-1.96%	3762740954				
24	AAB	20200204	23.67	23.67	23.47	23.47	5012		AIQ	-0.11	-0.93%	12421839				
25	AAB	20200205	23.47	23.49	23.32	23.33	353963		AIQF	-0.48	-18.97%	319380395				
26	AAB	20200206	23.29	23.41	23.29	23.37	6413149		AIQK	3.44	15.05%	237639479				
27	AAB	20200207	23.37	23.48	23.37	23.38	70645		AJA	-0.12	-4.58%	310826019				
28	AAB	20200210	23.37	23.41	23.26	23.3	26125		AJJ	0.88	0.79%	898786				
29	AAB	20200211	23.3	23.3	23.2	23.23	8271		AJK	1.41	13.17%	2250437189				
30	AAB	20200212	23.17	23.19	22.96	22.96	69241		AJL	-0.35	-2.45%	518277274				
31	AAB	20200213	22.98	23.04	22.95	22.96	49883		AJR	-0.6	-3.60%	214113622				
32	AAB	20200214	22.95	22.98	22.86	22.92	78316		AJS	0.69	3.95%	936684077				
33	AAB	20200218	22.83	22.89	22.76	22.85	2829		AKKV	-0.9	-10.26%	934206987				