

James Valles					
SE 433/333 Assignment #5					
# 1 - 2					
	Variable	Class	Representative Value	Description	
	<b>ShippingOption</b>				
	valid	Standard Shipping	S10 (\$10)	Standard Shipping option, which is \$10 per order	
		Next-Day Shipping	S25 (\$25)	Next-Day Shipping option, which is \$25 per order	
	invalid	Any Other Values	S0	Any other values, other than S10 and S25, are invalid (error)	
	<b>CustomerState</b>				
	valid	IL, CA, NY	C1, C2, C3	IL, CA, NY customers charged 6% sales tax (excluding shipping cost)	
		47 other U.S. States NOT including IL, CA, NY	C4 - C50	No sales tax will be charged.	
	invalid	NOT a U.S. state (> 50)	C51	Not a valid U.S. state (error)	
	<b>PurchaseAmount</b>				
	valid	> \$50.01	P51	If order is over \$50, standard shipping charge is waived	
		\$0.01 <= \$50	P49	If order is from \$0.01 up to and including \$50, standard shipping charged will not be waived	
	invalid	< \$0.01	P0	A value less than \$0.01 is not valid (error)	
#3 Weak Normal Test Cases					
Test ID	ShippingOption	CustomerState	PurchaseAmount	Description	Expected Output
T1	S10	C1	P51	Standard Shipping \$10, 6% sales tax, \$51 purchase amount (shipping waived)	54.06
T2	S25	C4	P49	Next-Day Shipping \$25, No Sales Tax	74
#4 Weak Robustness Test					
Test ID	ShippingOption	CustomerState	PurchaseAmount	Description	Expected Output
T3	S10	C1	P51	Standard Shipping \$10, 6% sales tax, \$51 purchase amount (shipping waived)	54.06
T4	S25	C4	P49	Next-Day Shipping \$25, No Sales Tax	74
T5	S0	C1	P49	Invalid Shipping Option, 6% Sales Tax, Shipping Not waived	ERROR
T6	S10	C51	P51	Invalid State, Standard Shipping \$10, Purchase Amount \$51	ERROR
T7	S25	C4	P0	Invalid Total Purchase Amount, Next-Day Shipping \$25, No sales tax charged	ERROR
# 5 Strong-Normal Test					
Test ID	ShippingOption	CustomerState	PurchaseAmount	Description	Expected Output
T8	S10	C1	P51	Standard Shipping \$10, 6% sales tax, \$51 purchase amount (shipping waived)	54.06
T9	S10	C4	P51	Standard Shipping (\$10), No sales Tax, \$51 Purchase Amount, Shipping Waived	51
T10	S10	C1	P49	Standard Shipping (\$10), 6% Sales Tax, \$49 Purchase Amt, Shipping NOT waived	61.94
T11	S10	C4	P49	Standard Shipping (\$10), No sales Tax, \$49 purchase amt, Shipping NOT waived	59
T12	S25	C1	P51	Next Day Shipping \$25, 6% Sales Tax, \$51 Purchase Amt	79.06
T13	S25	C4	P51	Next Day Shipping \$25, No Sales Tax, \$51 Purchase Amt	76
T14	S25	C1	P49	Next Day Shipping \$25, 6% Sales Tax, \$49 Purchase Amt	76.94
T15	S25	C4	P49	Next-Day Shipping \$25, No Sales Tax, \$49 Purchase Amt	74
# 6 Strong Robustness Test					
Test ID	ShippingOption	CustomerState	PurchaseAmount	Description	Expected Output

T16	S0	C1	P51	Invalid Shipping Option, 6% Sales Tax, Amount \$51	ERROR
T17	S0	C4	P51	Invalid Shipping Option, No Sales Tax, Amount \$51	ERROR
T18	S0	C1	P49	Invalid Shipping Option, 6% Sales Tax, Amount \$49	ERROR
T19	S0	C4	P49	Invalid Shipping Option, No Sales Tax, Amount \$49	ERROR
T20	S10	C51	P51	Invalid State, Standard Shipping (\$10), Amount \$51, Shipping Waived	ERROR
T21	S10	C51	P49	Invalid State, Standard Shipping (\$10), Amount \$49	ERROR
T22	S25	C51	P51	Invalid State, Next Day Shipping (\$25), Amount \$51	ERROR
T23	S25	C51	P49	Invalid State, Next Day Shipping (\$25), Amount \$49	ERROR
T24	S10	C1	P0	Invalid Total Purchase Amount, Standard Shipping (\$10), 6% Sales Tax	ERROR
T25	S10	C4	P0	Invalid Total Purchase Amount, Standard Shipping (\$10), No Tax	ERROR
T26	S25	C1	P0	Invalid Total Purchase Amount, Next Day Shipping (\$25), 6% Sales Tax	ERROR
T27	S25	C4	P0	Invalid Total Purchase Amount, Next Day Shipping (\$25), No Tax	ERROR
T28	S10	C1	P51	Standard Shipping \$10, 6% sales tax, \$51 purchase amount (shipping waived)	54.06
T29	S10	C4	P51	Standard Shipping (\$10), No sales Tax, \$51 Purchase Amount, Shipping Waived	51
T30	S10	C1	P49	Standard Shipping (\$10), 6% Sales Tax, \$49 Purchase Amt, Shipping NOT waived	61.94
T31	S10	C4	P49	Standard Shipping (\$10), No sales Tax, \$49 purchase amt, Shipping NOT waived	59
T32	S25	C1	P51	Next Day Shipping \$25, 6% Sales Tax, \$51 Purchase Amt	79.06
T33	S25	C4	P51	Next Day Shipping \$25, No Sales Tax, \$51 Purchase Amt	76
T34	S25	C1	P49	Next Day Shipping \$25, 6% Sales Tax, \$49 Purchase Amt	76.94
T35	S25	C4	P49	Next-Day Shipping \$25, No Sales Tax, \$49 Purchase Amt	74

#### # 7 Boundary Value & Special Value Analysis

	Variable	Value	Explanation	
	Shipping Option			
	Customers State			
		IL, CA, NY	If either of these states IL, CA, NY, apply 6% tax	
		TX	Within the boundry of valid states, but not in the 6% tax group, test that no tax applied	
		PR	Out of the boundry of valid states, invalid entry	
	Purchase Amount	\$0.01	Lowest legal value for valid purchase amount	
		\$0.02	Value next to lowest legal value boundry	
		\$0.00	Lower than lowest legal value for purchase amount	
		\$50.01	Start of Free Standard Shipping Discount	
		\$50.02	Next value from the Free Shipping Discount Boundry	
		\$50.00	Highest value without getting Free shipping	
		--	*highest valid purchase amount not specified in assignment, assuming unlimited	

#### #8 Design additional test cases for each of the input values identified in 7

Test ID	ShippingOption	CustomerState	PurchaseAmount	Description	Expected Output
T36	S10	C1	\$0.00	Standard Shipping (\$10), 6% tax, INVALID Purchase Amt \$0.00	ERROR
T37	S10	C4	\$50.00	Standard Shipping (\$10), Purchase Amt \$50, Shipping not waived	60
T38	S10	C1	\$50.01	Standard Shipping (\$10), 6% tax, Shipping Waived	53.01
T39	S10	C4	\$50.02	Standard Shipping (\$10), Purchase Amount \$50.02, No tax, Shipping Waived	50.02
T40	S10	C1	\$0.02	Standard Shipping (\$10), 6% tax, Shipping Not Waived	10.02
T41	S10	C1	\$0.01	Standard Shipping (\$10), 6% tax, Shipping Not Waived	10.01
T42	S25	IL	P51	Next-Day Shipping \$25, 6% tax, Purchase Amt \$51	79.06
T43	S25	TX	P49	Next-Day Shipping \$25, NO tax, Purchase Amt \$49	74
T44	S25	PR	P51	Next-Day Shipping \$25, INVALID state, Purchase Amt \$51	ERROR
T45	S10	CA	P49	Standard Shipping (\$10), 6% tax, Purchase Amt \$49, Shipping Not Waived	61.94
T46	S10	NY	P51	Standard Shipping (\$10), 6% tax, Purchase Amt \$51, Shipping Waived	54.06

<b>Pluralization # 1</b>					
	<b>Variable</b>	<b>Class</b>	<b>Representative Value</b>	<b>Description</b>	
	Word				
	valid	Regular nouns	W1	To make regular nouns plural, add -s to the end to make plural.	
		Singular noun ending in -s, -ss, -sh, -ch, -x, or -z**	W2	For singular noun ending in -s, -ss, -sh, -ch, -x, or -z, add -es to make plural	
		Noun ends with -f or -fe	W3	Noun ends with -f or -fe, the f is often changed to -ve before adding the -s to form the plural version.	
		If noun is roof, belief, chef, chief	W4	If noun is roof, belief, chef, chief, add -s to make plural.	
		Singular noun ends in -y and letter before -y is a consonant	W5	Singular noun ends in -y and the letter before the -y is a consonant, change the ending to -ies to make the noun plural.	
		Singular noun ends in -y and letter before the -y is a vowel	W6	Singular noun ends in -y and the letter before the -y is a vowel, simply add an -s to make it plural.	
		Singular noun ends in -o	W7	Singular noun ends in -o, add -es to make it plural.	
		If word is photo, piano, halo, add -s	W8	If word is photo, piano, halo, add -s to make plural.	
		Singular noun ends in -us	W9	Singular noun ends in -us, the plural ending is frequently -i.	
		Singular noun ends in -is	W10	Singular noun ends in -is, the plural ending is -es.	
		Singular noun ends in -on	W11	Singular noun ends in -on, the plural ending is -a.	
		Nouns that don't change when pluralized	W12	Nouns that don't change when pluralized.	
		Irregular nouns follow no specific rules	W13	Irregular nouns follow no specific rules, must be looked up in dictionary.	
	invalid	Not an english noun	E1	This can be a noun in another language, a number, nothing, etc. Throws error	
<b>#2</b>					
<b>Test ID</b>	<b>Word</b>	<b>Description</b>	<b>Expected Output</b>		
T47	Cat (W1)	To make regular nouns plural, add -s to the end to make plural.	Cats		
T48	Bus (W2)	Check singular noun ending in -s add -es to make plural	Buses		
T49	Wife (W3)	Check noun ends with -f is changed to -ve before adding -s	Wives		
T50	Roof (W4)	If noun is roof, belief, chef, chief, check to see that -s is added	Roofs		
T51	Puppy (W5)	Check singular noun ends in -y and the letter before the -y is a consonant, change the ending to -ies	Puppies		
T52	Boy (W6)	Check singular noun ends in -y and the letter before the -y is a vowel, -s is added	Boys		
T53	Potato (W7)	Check singular noun ends in -o, adds -es to make it plural	Potatoes		
T54	Photo (W8)	Check if word is photo, piano, halo, -s is added	Photos		
T55	Cactus (W9)	Check if singular noun ends in -us, -i is added.	Cacti		
T56	Analysis (W10)	If singular noun ends in -is, ending is -es.	Analyses		
T57	Phenomenon (W11)	If singular noun ends in -on, the plural ending is -a.	Phenomena		
T58	Sheep (W12)	Check that nouns doesn't change when they're pluralized.	Sheep		
T59	Cats	Word already in plural form should return original word.	Cats		
T60	Gato (E1)	This is the spanish word for Cat. In spanish plural would be gatos, here it results in an error as it is an invalid value.	ERROR		
T61	134453 (E1)	This is not an English word (invalid value) results in error.	ERROR		
<b>#3 Special Value / Boundry Value Analysis</b>					
<b>NOTE:</b> For this problem, boundry tests don't make sense given the context (there isn't a range). However, there are special value analysis such as irregular nouns that can be explored. Also for the class, Singular noun ending in -s, -ss, -sh, -ch, -x, or -z**, there are some words that require that the -s or -z, be doubled before adding -es.					
<b>Variable</b>	<b>Value</b>	<b>Explanation</b>			

Word	Tooth	This is an irregular noun. No rules to follow. Plural is Teeth.			
	Woman	This is an irregular noun. No rules to follow. Plural is Women.			
	Person	This is an irregular noun. No rules to follow. Plural is People.			
	Bacterium	This is an irregular noun. No rules to follow. Plural is Bacteria.			
	Datum	This is an irregular noun. No rules to follow. Plural is Data.			
	Gas	In some cases, singular nouns ending in -s or -z, require that you double the -s or -z prior to adding the -es for pluralization. Gasses			
#4 Design some additional test cases					
Test ID	Word	Description	Expected Output		
T62	Tooth	This is an irregular noun. No rules to follow. Plural is Teeth.	Teeth		
T63	Woman	This is an irregular noun. No rules to follow. Plural is Women.	Women		
T64	Person	This is an irregular noun. No rules to follow. Plural is People.	People		
T65	Bacterium	This is an irregular noun. No rules to follow. Plural is Bacteria.	Bacteria		
T66	Datum	This is an irregular noun. No rules to follow. Plural is Data.	Data		
T67	Gas	In some cases, singular nouns ending in -s or -z, require that you double the -s or -z prior to adding the -es for pluralization. Gasses	Gasses		