Equivalence Classes - Fe	unction1										
ariable	Criteria	Valid Classes	Invalid Classes								
edit Card Number	Luhn's Algorithm	ECV1 Follows Luhn's Algorithm	ECNV1, 16 Digits but no Luhn's Algorithm								
edit Card_Number	Data Type	ECV2 Valid Card Integer	ECNV2. Not a number								
Credit Card_Number	Length	ECV3 Valid Card 16 Digits	ECVN3, more than 16 digits ECVN4, Less than 16 digits EVNV1 15 Digits BVNV2 17 Digits								
D_Card	DNI Algorithm	ECV4 follows DNI algorithm	ECNV5, Letter and numbers not correctly matched								
D_Card	Length	ECV5 9 Characters	ECNV6, more than 9 characters ECNV7 less than 9 characters BVNV3 10 characters BVNV4 8 characters								
D_Card	Letter After 8 Digits	ECV6 8 digits followed by a letter	ECNV8 Not 8 digits followed by one letter								
D_Card	Data Type	ECV7 String	ECNV9 Not a String								
1											
Name_Surname	Length	ECV8 Between 10 and 50 Characters BVV1 10 Characters BVV2 11 Characters BVV3 49 Characters BVV4 50 Characters	ECNV10 less than 10 characters ECNV11 more than 50 characters BVNV5 9 characters BVNV6 51 characters								
Name Surname	Data Type	ECV9 String	ECNV12 not a string								
Name Surname	Spacing	ECV10 at least two strings with a space	ECNV13 String with no spaces								
Phone Number	Data Type	ECV11 Integer	ECNV14 not an Integer								
Phone_Number	Length	ECV12 9 digits	ECNV15 less than 9 digits ECNV16 greater than 9 digits BVNV7 8 digits BVNV8 10 digits								
TIONE_TECHNOLI	Lengur	LOVIZ 9 digita	DVIVO 10 digita								
Room Type	Data Type	ECV13 String	ECNV17 not a string								
Room_Type	Valid Value	ECV15 value "single" ECV15 value "double" ECV16 value "double"	ECNV18 not one of the three types								
roon_rype	valid value	ECV10 value suite	ECHV to not one or me mree types								
	Date Format	ECV17 String with format "DD/MM/YYYY"									
urival	Date Format Data Type		ECNV19 Incorrect format								
rrival rrival	After Current Date	ECV18 String ECV19 Date after/on Current Date	ECNV20 not a string ECNV21 before the current date								
Arrival	Valid Date	ECV20 Date exists on calendar	ECNV22 date does not exist on calendar								
Num_Days	Data Type	ECV21 Integer	ECNV23 not an integer								
Num Days	Number Value	ECV22 Integer between 1 and 10 BV/51 BV/62 BV/79 BV/810	ECNV24 below 1 ECNV25 above 10 BVNV9 0 BVNV10 11								
Null_Days	riumper value	DVV0 IU	DVINVIO II								

Test Cases -	Function 1														
Input/Output	Field	Valid/Invalid	Test ID	Description	Equivalence Class Tested	Credit Card Number	ID Card	Name Surname	Phone Number Room Type	Arrival Num Days	Expected Output				
Input	Credit Card Number	Valid	TC1	Valid Credit Card	ECV1, ECV2, ECV3	4929319438123457	12345678Z	Declan Lowney	123456789 Single	01/07/2025	5 TRUE				
Input	Credit Card Number	Invalid	TC2	Invalid Credit Card Number	ECNV1	4.92932E+15	12345678Z	Declan Lowney	123456789 Single	01/08/2025	5 Exception ("Invalid Credit Card")				
Input	Credit Card Number	Invalid	TC3	Invalid Credit Card Number	ECNV2	abcdefgh	12345678Z	Declan Lowney	123456789 Single	01/09/2025	5 Exception ("Invalid Credit Card")				
Input	Credit Card Number	Invalid	TC4	Invalid Credit Card Number	ECNV3. BVNV2	49293194381234578	12345678Z	Declan Lowney	123456789 Single	01/10/2025	5 Exception ("Invalid Credit Card")				
Input	Credit Card Number	Invalid	TC5	Invalid Credit Card Number	ECNV4, BVNV1	492931943812345	12345678Z	Declan Lowney	123456789 Single	01/11/2025	5 Exception ("Invalid Credit Card")				
Input	ID_Card	Valid	TC6	Valid ID Card	ECV4, ECV5, ECV6, ECV7	4929319438123457	12345678Z	Declan Lowney	123456789 Single	01/12/2025	5 TRUE				
Input	ID_Card	Invalid	TC7	Invalid ID Card	ECNV5	4929319438123457	12345678A	Declan Lowney	123456789 Single	01/13/2025	5 Exception ("Invalid ID Card")				
Input	ID_Card	Invalid	TC8	Invalid ID Card	ECNV6, BVNV3	4929319438123457	123456789A	Declan Lowney	123456789 Single	01/14/2025	5 Exception ("Invalid ID Card")				
Input	ID_Card	Invalid	TC9	Invalid ID Card	ECNV7. BVNV4	4929319438123457	1234567A	Declan Lowney	123456789 Single	01/15/2025	5 Exception ("Invalid ID Card")				
Input	ID_Card	Invalid	TC10	Invalid ID Card	ECNV8	4929319438123457	Z12345678	Declan Lowney	123456789 Single	01/16/2025	5 Exception ("Invalid ID Card")				
Input	ID_Card	Invalid	TC11	Invalid ID Card	ECNV9	4929319438123457	12345678	9 Declan Lowney	123456789 Single	01/17/2025	5 Exception ("Invalid ID Card")				
Input	Name Surname	Valid	TC12	Valid Name Surname	ECV8. ECV9. ECV10	4929319438123457	12345678Z	Declan Lowney	123456789 Single	01/18/2025	5 TRUE				
Input	Name_Surname	Valid	TC13	Valid Name_Surname	BVV1	4929319438123457	12345678Z	John Smith	123456789 Single	01/19/2025	5 TRUE				
Input	Name Surname	Valid	TC14	Valid Name_Surname	BVV2	4929319438123457	12345678Z	Jonny Smith	123456789 Single	01/20/2025	5 TRUE				
Input	Name_Surname	Valid	TC16	Valid Name_Surname	BVV3	4929319438123457	12345678Z	Alexandria Elizabeth Catherine Stephanie Jonathan	123456789 Single	01/21/2025	5 TRUE				
Input	Name Surname	Invalid	TC15	Invalid Name_Surname	BVV4	4929319438123457	12345678Z	Alexandria Elizabeth Catherine Stephanie Jonathans	123456789 Single	01/22/2025	5 Exception ("Invalid Name")				
Input	Name Surname	Invalid	TC17	Invalid Name_Surname	ECNV11. BVNV5	4929319438123457	12345678Z	Alexandria Elizabeth Catherines Stephanie Jonathans	123456789 Single	01/23/2025	5 Exception ("Invalid Name")				
Input	Name_Surname	Invalid	TC18	Invalid Name_Surname	ECNV10. BVNV6	4929319438123457	12345678Z	Jon Smith	123456789 Single	01/24/2025	5 Exception ("Invalid Name")				
Input	Name_Surname	Invalid	TC19	Invalid Name_Surname	ECNV12	4929319438123457	12345678Z	123		01/25/2025	5 Exception ("Invalid Name")				
Input	Name_Sumame	Invalid	TC20	Invalid Name_Surname	ECNV13	4929319438123457	12345678Z	DeclanLowney	123456789 Single	01/26/2025	5 Exception ("Invalid Name")				
									120.00.00						
Input	Phone Number	Valid	TC21	Valid Phone Number	ECV11. ECV12	4929319438123457	12345678Z	Declan Lowney	123456789 Single	01/27/2025	5 TRUE				
Input	Phone Number	Invalid	TC24	Invalid Phone Numer	ECNV14	4929319438123457	12345678Z	Declan Lowney	helloooooo Single	01/28/2025	5 Exception ("Invalid Phone Number")				
Input	Phone Number	Invalid	TC22	Invalid Phone Numer	ECNV15. BVNV7	4929319438123457	12345678Z	Declan Lowney	12345678 Single	01/29/2025	5 Exception ("Invalid Phone Number")				
Input	Phone Number	Invalid	TC23	Invalid Phone Numer	ECNV16. BVNV7	4929319438123457	12345678Z	Declan Lowney	1234567891 Single	01/30/2025	5 Exception ("Invalid Phone Number")				
Input	Room_Type	Valid	TC25	Valid Room Type	ECV13. ECV14	4929319438123457	12345678Z	Declan Lowney	123456789 Single	01/31/2025	5 TRUE				
Input	Room Type	Valid	TC26	Valid Room Type	ECV15	4929319438123457	12345678Z	Declan Lowney	123456789 Double	02/01/2025	5 TRUE				
Input	Room_Type	Valid	TC27	Valid Room Type	ECV16	4929319438123457	12345678Z	Declan Lowney	123456789 Suite	02/02/2025	5 TRUE				
Input	Room_Type	Invalid	TC28	Invalid Room Type	ECNV18	4929319438123457	12345678Z	Declan Lowney	123456789 Hello	02/03/2025	5 Exception ("Invalid Room Type")				
Input	Room Type	Invalid	TC29	Invalid Room Type	ECNV17	4929319438123457	12345678Z	Declan Lowney		234 02/04/2025	5 Exception ("Invalid Room Type")				
Input	Arrival	Valid	TC30	Valid Date	ECV17, ECV18, ECV19, ECV20	4929319438123457	12345678Z	Declan Lowney	123456789 Single	02/05/2025	5 TRUE				
Input	Arrival	Invalid	TC31	Invalid Date	ECNV19	4929319438123457	12345678Z	Declan Lowney	123456789 Single	2052025	5 Exception ("Invalid Arrival Date")				
Input	Arrival	Invalid	TC32	Invalid Date	ECNV20	4929319438123457	12345678Z	Declan Lowney	123456789 Single	1234	5 Exception ("Invalid Arrival Date")				
Input	Arrival	Invalid	TC33	Invalid Date	ECNV21	4929319438123457	12345678Z	Declan Lowney	123456789 Single	01/01/1998	5 Exception ("Invalid Arrival Date")				
Input	Arrival	Invalid	TC34	Invalid Date	ECNV22	4929319438123457	12345678Z	Declan Lowney	123456789 Single	03/58/2028	5 Exception ("Invalid Arrival Date")				
Input	Num Days	Valid	TC35	Valid Number of Days	ECV21, ECV21	4929319438123457	12345678Z	Declan Lowney	123456789 Single	02/05/2025	5 TRUE				
Input	Num Days	Invalid	TC36	Invalid Number of Days	ECNV23	4929319438123457	12345678Z	Declan Lowney	123456789 Single	02/06/2025 a	Exception ("Invalid Number of Days")				
Input	Num Days	Invalid	TC37	Invalid Number of Days	ECNV24, BVNV9	4929319438123457	12345678Z	Declan Lowney	123456789 Single	02/07/2025	0 Exception ("Invalid Number of Days")				
Input	Num Days	Valid	TC38	Valid Number of Days	EVC22. BVV5	4929319438123457	12345678Z	Declan Lowney	123456789 Single	02/08/2025	1 TRUE				
Input	Num Days	Valid	TC39	Valid Number of Days	EVC22, BVV6	4929319438123457	12345678Z	Declan Lowney	123456789 Single	02/09/2025	2 TRUE				
Input	Num Days	Valid	TC40	Valid Number of Days	EVC22, BVV7	4929319438123457	12345678Z	Declan Lowney	123456789 Single	02/10/2025	9 TRUE				
Input	Num Days	Valid	TC41	Valid Number of Days	EVC22, BVV8	4929319438123457	12345678Z	Declan Lowney	123456789 Single	02/11/2025	10 TRUE				
Input	Num Days	Invalid	TC42	Invalid Number of Days	ECNV24, BVNV10	4929319438123457	12345678Z	Declan Lowney	123456789 Single		11 Exception ("Invalid Number of Days")				
								,							 $\overline{}$

Syntax Analys	is Tost Caro	- Function 2													
# Node		Duplicated / Deleted / Modified / Valid	ID tost	t Description	File Path	File Content	Expected Result	Observation							
1 All				Valid Case		("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "idCard": "12345678Z")	Valid Valid	_03011011011							
2	1 NT			Node 1 deleted	TC2.json	{ LOCALZEI : 040CUDUSSADADI704C2150778767C940 ; IDCAIO : 125456762 }	JSONDecodeError								
-		Determina	102	1400E 1 OEIEEG	TOZ-Jaun	("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	SOCIEDEDUCELIO								
3	1 NT	Duplicated	TC3	Node 1 duplicated	TC3.json	("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	JSONDecodeError								
4	2, 5 NT/T	Deleted	TC4	Node 2 deleted	TC4.json	"Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	JSONDecodeError								
5				Node 2 duplicated			JSONDecodeError								
6				Node 5 modified	TC6.json		JSONDecodeError								
7	3 N	Deleted	TC7	Node 3 deleted	TC7.json	0	KeyError								
						"Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z"									
8	3 NT 4.9 NT/T			Node 3 duplicated			JSONDecodeError								
40				Node 4 deleted Node 4 duplicated		("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z" ("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z"))	JSONDecodeError JSONDecodeError								
10	9 T			Node 9 modified		("Localizer": "o45cdbc85ababf7d4c215d77a767c94d"; "ldCard": "12345678Z"	JSONDecodeError								
12	6 NT			Node 6 deleted		{, "IdCard": "12345678Z"}	JSONDecodeError								
12	0 141	Dereited	1012	THOSE O GENERAL	TO 12-jaon	("Localizer": "c45cdbc85ababf7d4c215d77a767c94d"	SOCIEDEDGELIIG								
13	6 NT	Duplicated	TC13	Node 6 duplicated	TC13.json	"Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	JSONDecodeError								
14	7, 17 NT/T	Deleted	TC14	Node 7 deleted	TC14.json	("Localizer": "o45cdbc85ababf7d4c215d77a767c94d" "ldCard": "12345678Z")	JSONDecodeError								
15	7, 17 NT/T	Duplicated	TC15	Node 7 duplicated		("Localizer": "o45cdbc85ababf7d4c215d77a767c94d",, "ldCard": "12345678Z")	JSONDecodeError								
16	17 T			Node 17 modified		("Localizer": "o45cdbc85ababf7d4c215d77a767c94d"! "ldCard": "12345678Z")	JSONDecodeError								
17	8 NT	Deleted	TC17	Node 8 deleted	TC17.json	("Localizer": "c45cdbc85ababf7d4c215d77a767c94d",)	JSONDecodeError								
10	9 NT	Duplicated	TC19	Node 9 duplicated	TC19 iron	("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z" "ldCard": "12345678Z")	JSONDecodeError								
19	10. 25 NT/T			Node 8 duplicated Node 10 deleted		"IOCald": "123456782") {Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "idCard": "12345678Z"}	JSONDecodeError JSONDecodeError								
	10, 25 NT/T					("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	JSONDecodeError								
21	25 T			Node 25 modified		(;Localizer': "c45cdbc85ababf7d4c215d77a767c94d", "idCard": "12345678Z")	JSONDecodeError								
22	11, 26 NT/T			Node 11 deleted		(": "o45cdbc85ababf7d4c215d77a767c94d", "IdCard": "123456782")	KeyError								
23	11, 26 NT/T	Duplicated	TC23	Node 11 duplicates	TC23.json	("LocalizerLocalizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	Key Error								
24	26 T	Modified	TC24	Node 26 modified	TC24.json	("Hello": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	KeyError								
25	12, 27 NT/T	Deleted	TC25	Node 12 deleted	TC25.json	("Localizer: "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	JSONDecodeError								
	12, 27 NT/T					("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	JSONDecodeError								
27	27 T					("Localizer;: "c45cdbc85ababf7d4c215d77a767c94d", "idCard": "12345678Z")	JSONDecodeError								
28 13, 28	NT/T			Node 13 deleted		("Localizer" "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	JSONDecodeError								
29 13, 28						("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	JSONDecodeError								
30	28 T			Node 28 modified		("Localizer"- "o45cdbc85ababf7d4c215d77a767c94d", "idCard": "12345678Z")	JSONDecodeError								
31 14, 29	NT/T					("Localizer": c45cdbc85ababf7d4c215d77a767c94d", "idCard": "12345678Z")	JSONDecodeError								
32 14, 29	29 T					("Localizer": ""c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z") ("Localizer": ;c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z")	JSONDecodeError JSONDecodeError								
34 15 30						("Localizer": ", "IdCard": "12345678Z")	Localizer not found in bookings file								
34 15, 30	NIZI	Deleted	1034	Node 15 deleted	1034,9011	("Localizer", Inc.ard., 123400702.) ("Localizer", "n45cdhr85ahah/7d4c215d77a767c94d	Localizer not local an bookings life								
35 15, 30	NT/T	Duplicated	TC35	Node 15 duplicate	TC35.json	o45cdbc85ababf7d4c215d77a767c94d*, "IdCard*: "12345678Z*)	JSONDecodeError								
36	30 T					("Localizer": "thing", "IdCard": "12345678Z")	Localizer not found in bookings file								
37 16, 31	NT/T	Deleted	TC37	Node 16 deleted	TC37.json	("Localizer": "o45cdbc85ababf7d4c215d77a767c94d, "idCard": "12345678Z")	JSONDecodeError								
38 16, 31						("Localizer": "o45cdbc85ababf7d4c215d77a767c94d"", "idCard": "12345678Z")	JSONDecodeError								
39	31 T					("Localizer": "o45cdbc85ababf7d4c215d77a767c94d;, "idCard": "12345678Z")	JSONDecodeError								
40 18, 32				Node 18 deleted		("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", ldCard": "12345678Z")	JSONDecodeError								
41 18, 32						("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "lidCard": "12345678Z")	JSONDecodeError								
42	32 T					("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", \ldCard": "12345678Z")	JSONDecodeError								
43 19, 33	NT/T					("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "": "12345678Z")	KeyError								
44 19, 33 45	19 T			Node 19 duplicates Node 33 modified		"Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "IdCard IdCard": "12345678Z") ("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "Something": "12345678Z")	KeyError KevError								
46 20.34	NT/T			Node 33 modified Node 20 deleted		("Localizer": "045cdbc85ababf7d4c215d77a767c94d", "50mething": "12345678Z") ("Localizer": "045cdbc85ababf7d4c215d77a767c94d", "IdCard: "12345678Z")	JSONDecodeError								
46 20, 34	NT/T					("Localizer": "045cdbc85ababf7d4c215d77a767c94d", "ldCard": "123456782") ("Localizer": "045cdbc85ababf7d4c215d77a767c94d", "ldCard"": "123456782")	JSONDecodeError JSONDecodeError								
47 20, 34	34 T					("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "idCard: "123456782")	JSONDecodeError								
49 21.35	NT/T			Node 21 deleted		("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard" "12345678Z")	JSONDecodeError								
50 21, 35						("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard":: "12345678Z")	JSONDecodeError								
51	35 T		TC51	Node 35 modified	TC51.json	("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard"+ "12345678Z")	JSONDecodeError								
52 22, 36	NT/T			Node 22 deleted		("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard": 12345678Z")	JSONDecodeError								
53 22, 36	NT/T	Duplicated	TC53	Node 22 duplicates	TC53.json	("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard": ""12345678Z")	JSONDecodeError								
54	36 T	Modified	TC54	Node 36 modified	TC54.json	("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard": \12345678Z")	JSONDecodeError								
55 23, 37				Node 23 deleted		("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard": "")	IdCardError								
56 23, 37	NT/T		TC56	Node 23 duplicates		("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z 12345678Z")	IdCardError								
57	37 T			Node 37 modified		("Localizer": "o45cdbc85ababf7d4c215d77a767c94d", "ldCard": "Hello")	IdCardError								
58 24, 38	NT/T			Node 24 deleted		("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z)	JSONDecodeError								
59 24, 38	NT/T					("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678Z"")	JSONDecodeError								
60						("Localizer": "c45cdbc85ababf7d4c215d77a767c94d", "ldCard": "12345678ZI)	JSONDecodeError								
61	1 NT	Localizer modified	TC61	Testing manipulation	in TC61.json	("Localizer": "o45cdbc85ababf7d4c215d77a767c111", "ldCard": "12345678Z")									

Structural Testing - Function 3				
Route	ID Test	D Test Description		
1 1-11	TC1	C1 Stay file doesn't exist		
2 1-2-3-10	TC2	C2 No entries in stay files		
3 1-2-3-4-3-10	TC3	C3 One entry which does not contain the room key		
4 1-2-3-4-5-6-12-13-14-15-16-17-18-7-20-8-21-22-23-24-26-27-9	TC4	C4 Valid case		
5 1-2-3-4-5-6-12-28	TC5	CS Room key is not a string		
6 1-2-3-4-5-6-12-13-28	TC6	CG Room key is the incorrect length		
7 1-2-3-4-5-6-12-13-14-28	TC7	CC7 Room key is not an alphanumeric string		
8 1-2-3-4-5-6-12-13-14-15-28	TC8	C8 Room key is not all lowercase lowercase		
9 1-2-3-4-5-6-12-13-14-15-16-17-19	TC9	C9 Room key is not correct given the corresponding data		
10 1-2-3-4-5-6-12-13-14-15-16-17-18-7-20-8-21-22-23-24-25	TC10	C10 Valid Case if checkouts json does not already exist		
11 1-2-3-4-5-6-12-13-14-15-16-17-18-7-20-8-21-22-23-24-25-30	TC11	C11 Error if room key already exists in file when adding checkout		
12 1-2-3-4-5-6-12-13-14-15-16-17-18-7-20-8-21-22-23-24-25-24-26-27-9	TC12	C12 Valid case where add json to check out file must reiterate through loop		