Domain Testing
Examples

Printer Controller
Example from the Lecture Slides – Testing Notes

The program is to control the printing of an ordinary ASCII file on a laser printer, giving the user various options as specified below. The program modifies the file by inserting commands which begin with the character "/". (Note: User must respond to all items with a response of the correct type.)

Specifications:
(A) The user must specify the **file** to be printed.
(B) The user may print multiple **copies**; the integer number of copies to be printed must be specified.
(C) The file must be printed in either portrait or landscape **mode**; the mode is identified by a single letter P (or p) or L (or l); the user must specify which.
(D) There are 9 portrait **fonts** and 3 landscape fonts available. They are identified by the numbers 1-9 and 1-3.
(E) If the file to be printed contains the character "\", then the laser printer must be reprogrammed to use an alternate **command character**. The user must specify whether "\" is contained in the file. If so, the user must specify a character (one that is not contained in the file) to be used as the alternate command character; this character must be a printable character.
(F) The user must specify whether **margins** (which include page breaks) are to be inserted in the file.

Equivalence Classes (or items of interest)

(A) File name
    1. the name of a real file (valid)
    2. the name of a non-existent file (invalid)
    3. no name for the file (invalid)
(B) Number of copies
    4. one copy (valid)
    5. more than 1 copy (valid)
    6. fewer than one copy (invalid)
(C) Mode
    7. P or p - portrait mode (valid)
    8. L or l - landscape mode (valid)
    9. some other character (invalid)
(D) Font number
    10. any font number between 1 and 9 and portrait mode (valid)
    11. any font number between 1 and 3 and landscape mode (valid)

12. font number below 1 (invalid)
13. font number above 9 (invalid)
14. any font number between 4 and 9 and landscape mode (invalid)

(E) Command character

15. "\" not present in file (valid)
16. "\" present, alternate printable character given (valid)
17. "\" stated as present, but not in file, and also given as the alternative character (valid)
18. "\" present, a non-printable character specified as the alternative (invalid)

(F) Margins

19. margins desired (valid)
20. margins not desired (valid)
21. file contains exactly 1 page (valid)
22. file contains more than 1 page (valid)

NOTE: We are assuming that responses of the user to queries about items E and F default to NO if user does not respond YES.

Set up the test environment

Files:

For valid cases - FILE1 does not contain "\" and has only 1 page.
FILE2 contains "\" and several pages.

For invalid cases FILE4 does not exist
TRASH$…$ is an invalid file name.

1. **FILE1, 1, P, 1, NO, YES**
2. **FILE2, 2, L, 1, YES, @, NO**
3. **FILE1, 1, P, 3, YES, \, YES**

With the first three cases all the valid equivalence classes are covered! The rest of the cases are need just for the invalid classes and each case can only use one invalid class at a time.

4. **FILE4, 1, P, 1, NO, NO**
5. **TRASH$…$, 1, P, 1, NO, NO**
6. **FILE1, -1, P, 1, NO, NO**
7. **FILE1, 1, A, 1, NO, NO**
8. **FILE1, 1, P, 0, NO, NO**
9. **FILE1, 1, P, 10, NO, NO**
10. **FILE1, 1, L, 4, NO, NO**
11. **FILE2, 1, P, 1, YES, <LF>, YES**

Test Case Table:
Tables or matrices are helpful in determining which equivalence classes have been tested. In the table that follows, the rows represent the equivalence classes and the columns represent the test cases.

Equivalence Classes		Test Case Number										
		1	2	3	4	5	6	7	8	9	10	11
FileName	vaild	v	v	v			v	v	v	v	v	v
	invalid				I							
	invalid(none)					I						
Number of Copies	one copy	v		v	v	v		v	v	v	v	v
	more than one copy		v									
	fewer than one copy						I					
mode	P or p	v		v	v	v	v		v	v		v
	L or l		v								v	
	some other char							I				
font number	any font 1-9 and p mode	v		v	v	v	v	v				v
	any font 1-3 and l mode		v									
	below 1								I			
	above 9									I		
	between 4 and 9 and l mode										I	
command char	\ not present	v			v	v	v	v	v	v	v	
	\ present and alternate		v									
	\ stated as present but not			v								
	\ present and non printable											I
margins	margins desired	v		v								v
	margins not desired		v		v	v	v	v	v	v	v	
	file contains exactly 1 page	v		v			v	v	v	v	v	
	file contains more than 1 page		v									v

Example 2: the Triangle Problem
Table used to organize the equivalence classes, the actual values, the expected results and the execution of the cases for the triangle problem used in class**.**

Test Cases	side 1	side 2	side 3	expected results	tested results	passed	failed	date
. Valid scalene triangle	3	4	6	scalene triangle				
(S+M) > L	6	4	3	scalene triangle				
where S <= M <= L	3	6	4	scalene triangle				
1	4	6	3	scalene triangle				
	6	3	4	scalene triangle				
2. Invalid scalene	1	2	3	not a triangle				
(S+M = L)	2	3	1	not a triangle				
	3	2	1	not a triangle				
	1	3	2	not a triangle				
	3	1	2	not a triangle				
	2	1	3	not a triangle				
(S+M < L)	1	2	4	not a triangle				
	2	1	4	not a triangle				
	4	1	2	not a triangle				
	1	4	2	not a triangle				
	2	4	1	not a triangle				
	4	2	1	not a triangle				
3. Valid Isosceles triangle	2	2	3	isosceles triangle				
	2	3	2	isosceles triangle				
	3	2	2	isosceles triangle				
4. Invalid Isosceles triangle	2	2	4	not a triangle				
	2	4	2	not a triangle				
	4	2	2	not a triangle				
5. Valid Equilateral triangle	4	4	4	equilateral triangle				
6. Invalid triangles	0	3	3	not a triangle				
(one zero side)	3	3	0	not a triangle				
	3	0	3	not a triangle				
all zeros	0	0	0	not a triangle				
alphanumeric input a		4	1	not a triangle				
	4	1 a		not a triangle				
	4 a		1	not a triangle				

one negative side	-1	7	5	not a triangle
	7	5	-1	not a triangle
	5	-1	7	not a triangle
	-1	5	7	not a triangle
	7	-1	5	not a triangle
	5	7	-1	not a triangle
all negative	-1	-2	-3	not a triangle
	-3	-4	-6	not a triangle
	-1	-1	-1	not a triangle
	-2	-2	-4	not a triangle
	-2	-2	-1	not a triangle
overflow testing	max_int	max_int	max_int	equilateral triangle
	max_int	max_int-1	max_int-1	isosceles triangle
	max_int-1	max_int-1	max_int	isosceles triangle
	max_int-1	max_int	max_int-1	isosceles triangle