CSCM64 - SOFTWARE TESTING

COURSEWORK – 2

Group Members:

Shilpi Yadav – 2150456

Task 1:

1) **Input:** Six integers a, b, c, u, v, w
   Output:
   a) **Out of Range**, if at least one of the inputs does not lies between the range of [0, 100].
   b) **Invalid input**, when a = b = 0 or u = v = 0.
   c) **Equal**, input should neither "out of range" nor "invalid input" and if the straight line L1 where equation is ax + by = c is equal to straight line L2 where equation ux + vy = w. In short, c = w.
   d) **Parallel**, input should neither "out of range" nor "invalid input" and if the straight line L1 ax + by = c is parallel but not equal to the straight line L2 ux + vy = w. In short, c != w.
   e) **Intersecting**, in all other cases.

The following partition of the domain $[0, 100]^6$ of valid inputs:

1) {(a, b, c, u, v, w) E $[0, 100]^6$ | (a, b, c, u, v, w) it define an Out of range.}
2) {(a, b, c, u, v, w) E $[0, 100]^6$ | (a, b, c, u, v, w) it define an Invalid input.}
3) {(a, b, c, u, v, w) E $[0, 100]^6$ | (a, b, c, u, v, w) it define an Equal.}
4) {(a, b, c, u, v, w) E $[0, 100]^6$ | (a, b, c, u, v, w) it define an Parallel.}
5) {(a, b, c, u, v, w) E $[0, 100]^6$ | (a, b, c, u, v, w) it define an Intersecting.}

Partition P:

1) <u>Out of range:</u> There are six possible ways where "Out of range" will be expected as output where it fails. Here, among six inputs one should be less than 0 and greater than 100.

   a) {(a, b, c, u, v, w) E $[0, 100]^6$ | a < 0 and a > 100}
   b) {(a, b, c, u, v, w) E $[0, 100]^6$ | b < 0 and b > 100}
   c) {(a, b, c, u, v, w) E $[0, 100]^6$ | c < 0 and c > 100}
   d) {(a, b, c, u, v, w) E $[0, 100]^6$ | u < 0 and u > 100}
   e) {(a, b, c, u, v, w) E $[0, 100]^6$ | v < 0 and v > 100}
   f) {(a, b, c, u, v, w) E $[0, 100]^6$ | w < 0 and w > 100}

2) <u>Invalid input:</u> There are four possible ways where Invalid input will be expected as output where it fails. Here, the condition where a = b = 0 or u = v = 0.

   a) {(a, b, c, u, v, w) E $[0, 100]^6$ | a = 0}
   b) {(a, b, c, u, v, w) E $[0, 100]^6$ | b = 0}
   c) {(a, b, c, u, v, w) E $[0, 100]^6$ | u = 0}
   d) {(a, b, c, u, v, w) E $[0, 100]^6$ | v = 0}

3) <u>Equal:</u> The equations of straight lines L1 ax + by = c and L2 ux + vy = w should be equal, where **c = w.** It will fail when inputs are lies in "out of range" and "invalid input".

   {(a, b, c, u, v, w) E $[0, 100]^6$ | c = w}

4) <u>Parallel:</u> The equations of straight lines L1 ax + by = c is parallel and L2 ux + vy = w should not be equal to L1, where **c != w.** It will fail when inputs are lies in "out of range" and "invalid input".

{(a, b, c, u, v, w) E [0, 100]^6 | c != w}

5) <u>Intersecting:</u> The equations of straight line L1 ax + by = c and L2 ux + vy = w is neither equal nor parallel. It will fail when inputs are lies in "out of range" and "invalid input".

{(a, b, c, u, v, w) E [0, 100]^6 | c = w, c != w}

2) Equivalence Class Testing based on partition:

Case	a	b	c	u	v	w	Expected Output
1.1	-1	10	9	30	10	40	Out of range
1.2	0	20	20	65	85	150	Out of range
1.3	20	-5	15	12	20	22	Out of range
1.4	100	2	102	40	2	42	Out of range
1.5	-20	10	-10	70	10	80	Out of range
1.6	10	20	30	-30	5	-25	Out of range
2.1	0	0	10	22	12	34	Invalid input
2.2	5	10	5	66	10	76	Invalid input
2.3	2	3	5	0	0	8	Invalid input
2.4	50	50	100	7	0	7	Invalid input
3	50	50	50	50	50	50	Equal
4.1	15	15	30	20	20	40	Parallel
4.2	3	23	26	90	5	95	Parallel
4.3	10	15	25	10	20	30	Parallel
5.1	30	20	50	20	30	50	Intersecting
5.2	10	50	60	30	30	60	Intersecting
5.3	50	50	100	50	10	60	Intersecting
5.4	50	10	60	50	50	100	Intersecting