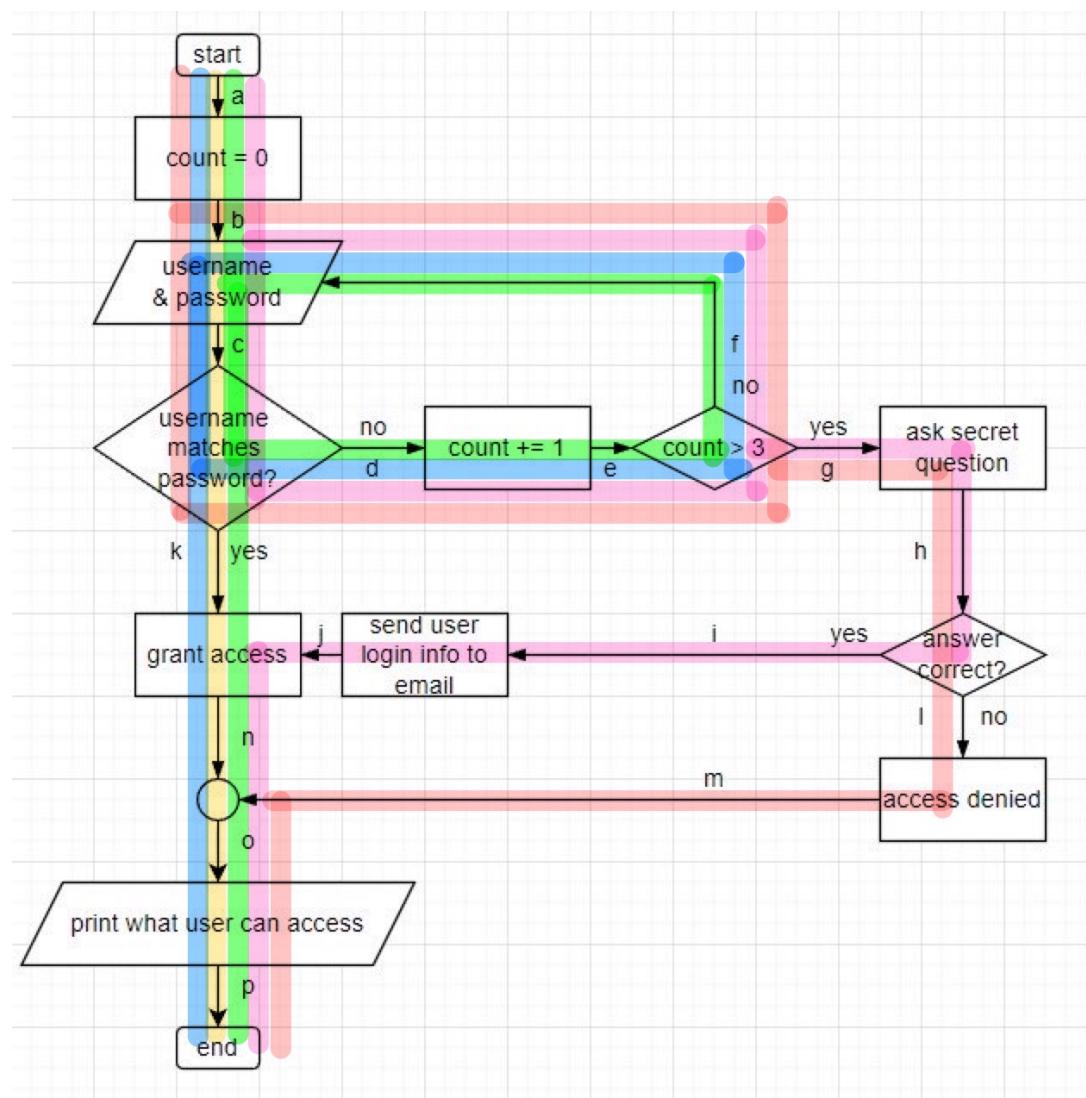


1) Login attempt

Flowchart



Pseudocode

```

SET count to 0
SET access to false
WHILE count < 3 and access is false
    READ username
    READ password
    IF username matches password THEN
        SET access to true
        PRINT access granted
    ELSE
        INCREMENT count by 1
    ENDIF
    IF access is false THEN

```

```

PRINT secret question
READ answer
IF answer corrects THEN
    SET access to true
    send user info to email
    PRINT send user info to email
    PRINT access granted
ELSE
    PRINT access denied
ENDIF
ENDIF

```

Test case

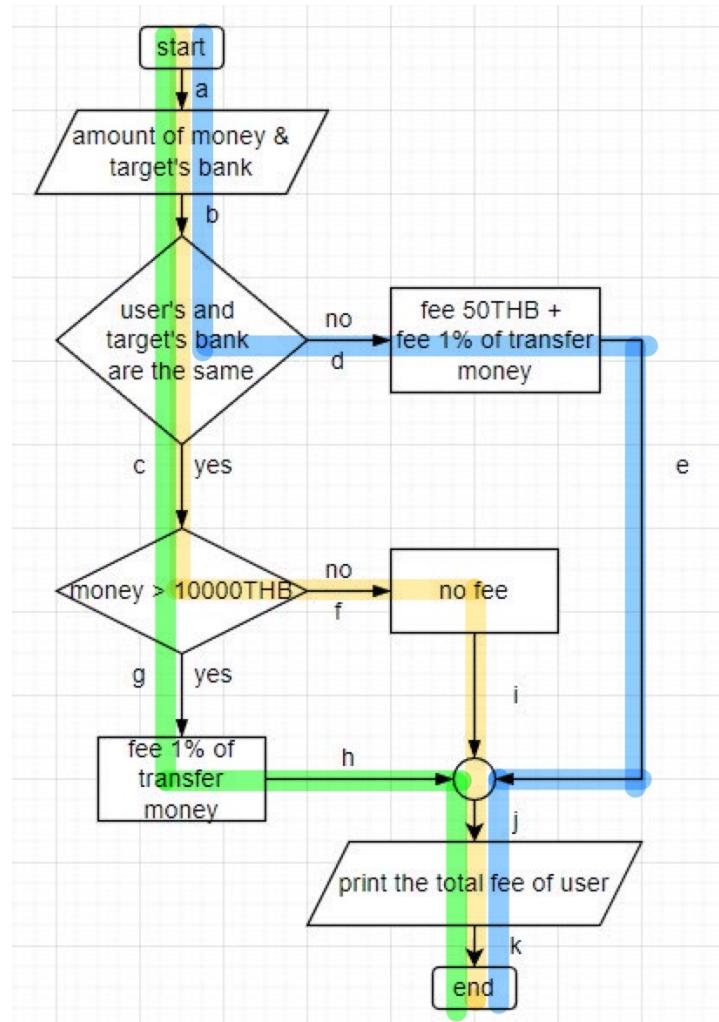
Correct user = CIE, Correct password = 1234

Test Case	Inputs	Expected Results	Path Coverage
1. The user puts the correct username & password	<ul style="list-style-type: none"> ● Username = CIE ● Password = 1234 	User can access	a-b-c-k-n-o-p
2. The user puts the wrong password or password for the first time then the user puts the correct username & password	<ul style="list-style-type: none"> ● The first <ul style="list-style-type: none"> ○ Username = CIE ○ Password = 123 ● The second <ul style="list-style-type: none"> ○ Username = CIE ○ Password = 1234 	User can access	a-b-c-d-e-f-c-k-n-o-p
3. The user puts the wrong password or password for the first & second time then the user puts the correct username & password	<ul style="list-style-type: none"> ● The first <ul style="list-style-type: none"> ○ Username = CIE ○ Password = 1234 ● The second <ul style="list-style-type: none"> ○ Username = AiCE ○ Password = 1235 ● The Third <ul style="list-style-type: none"> ○ Username = CIE ○ Password = 1234 	User can access	a-b-c-d-e-f-c-d-e-f-c-k -n-o-p
4. The user puts the wrong password or password for the first, second, and third time then the user puts the correct secret answer.	<ul style="list-style-type: none"> ● The first <ul style="list-style-type: none"> ○ Username = CIE ○ Password = 1231 ● The second <ul style="list-style-type: none"> ○ Username = EIC ○ Password = 12123 ● The Third 	User can access and login info in user's email	a-b-c-d-e-f-c-d-e-f-c-d -e-f-c-d-e-g-h-i-j-n-o- p

	<ul style="list-style-type: none"> ○ Username = AiCE ○ Password = 1234 ● the secret answer = CIEinWonderland 		
5. The user puts the wrong password or password for the first, second, and third time then the user puts the wrong secret answer.	<ul style="list-style-type: none"> ● The first <ul style="list-style-type: none"> ○ Username = CIE ○ Password = 1231 ● The second <ul style="list-style-type: none"> ○ Username = EIC ○ Password = 12123 ● The Third <ul style="list-style-type: none"> ○ Username = AiCE ○ Password = 1234 ● the secret answer = AiCEinWonderland 	User can't access	a-b-c-d-e-f-c-d-e-f-c-d -e-f-c-d-e-g-h-l-m-o-p

2) Money transfer

Flowchart



Pseudocode

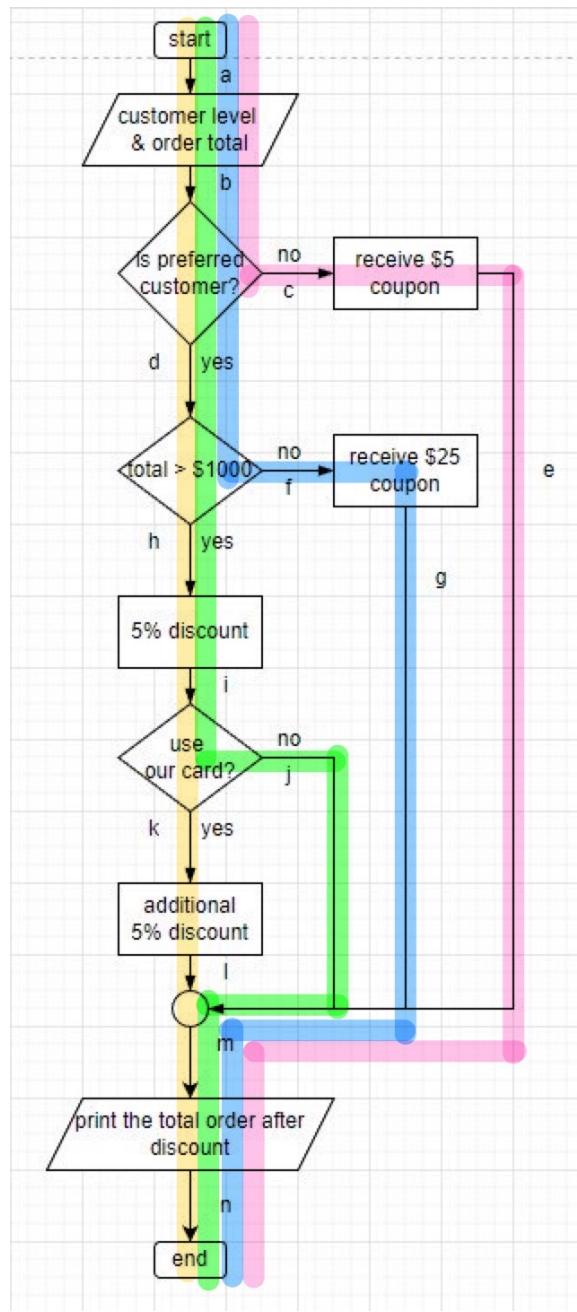
```
READ transferring money  
READ user's bank  
READ target's bank  
IF user's bank matches target's bank THEN  
    IF amount of money > 10000 THEN  
        SET fee to 1% of transferring money  
    ELSE  
        SET fee to 0  
    ENDIF  
ELSE  
    SET fee to 50 plus 1% of transferring money  
ENDIF  
PRINT fee
```

Test case

Test Case	Inputs	Expected Results	Path Coverage
1) User transfer money in the same bank, and the amount is less than 10000THB	<ul style="list-style-type: none"> • Amount of money = 5000THB • Target's bank = Bangkok bank 	<p>Users didn't have to pay the fee</p> <p>Fee = 0</p>	a-b-c-f-i-j-k
2) User transfer money in the same bank, and the amount is more than 10000THB	<ul style="list-style-type: none"> • Amount of money = 15000THB • Target's bank = Bangkok bank 	<p>Users have to pay fee 1% of transfer money</p> <p>Fee = 150</p>	a-b-c-g-h-j-k
3) User transfer money in a different bank.	<ul style="list-style-type: none"> • Amount of money = 5000THB • Target's bank = Kasikorn bank 	<p>Users have to pay a fee of 50THB and a fee 1% of the transfer money</p> <p>Fee = 100</p>	a-b-d-e-j-k

3) Sales promotion

Flowchart



Pseudocode

```
READ customer level
READ order total
READ use card
IF customer level is preferred THEN
    IF order total > 1000 THEN
        SET total to 95% of total
        IF use card THEN
            SET total to 95% of total
        ENDIF
    ELSE
```

```

        PRINT $25 coupon
ENDIF
PRINT $5 coupon
ENDIF
PRINT total

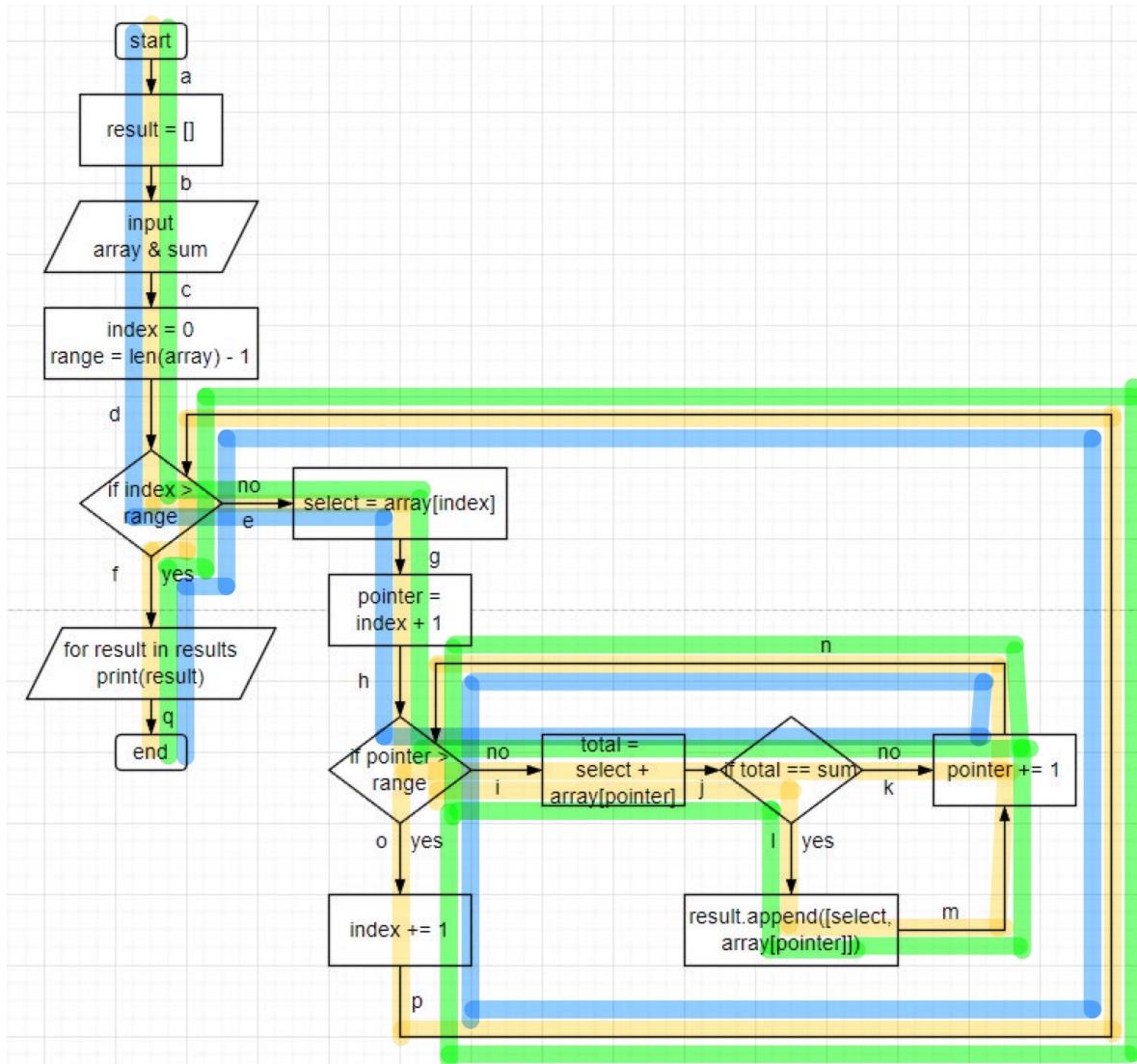
```

Test case

Test Case	Inputs	Expected Results	Path Coverage
1) User is the preferred customer, the total order is more than \$1000, and the user uses the Card.	<ul style="list-style-type: none"> Customer level = preferred customer Order total = \$1200 The Card = Use 	Customer gets a 5% discount and gets an additional 5% discount Order total = 1083	a-b-d-h-i-k-l-m-n
2) User is the preferred customer, the total order is more than \$1000, and the user didn't use the Card.	<ul style="list-style-type: none"> Customer level = preferred customer Order total = \$1200 The Card = Didn't use 	Customer gets only a 5% discount Order total = 1140	a-b-d-h-i-j-m-n
3) User is the preferred customer, and the total order is less than \$1000	<ul style="list-style-type: none"> Customer level = preferred customer Order total = \$500 	Customer gets receive \$25 coupon	a-b-d-f-g-m-n
4) User isn't the preferred customer	<ul style="list-style-type: none"> Customer level = Standard customer 	Customer gets receive \$5 coupon	a-b-c-e-m-n

4) Find all pairs of numbers in a given list that sum to a given value

Flowchart



Pseudocode

```

SET result to []
SET index to 0
READ array
READ sum
SET range to the length of array minus 1
FOR index < range
  SET select to element in array at index
  SET pointer to index + 1
  FOR index < range
    SET total to select + element in array at pointer
    IF total == sum THEN
      APPEND [select, array[pointer]] to result
    ELSE
      INCREMENT pointer by 1
  
```

```

        ENDIF
ENDFOR
INCREMENT index by 1
ENDFOR
PRINT result in results

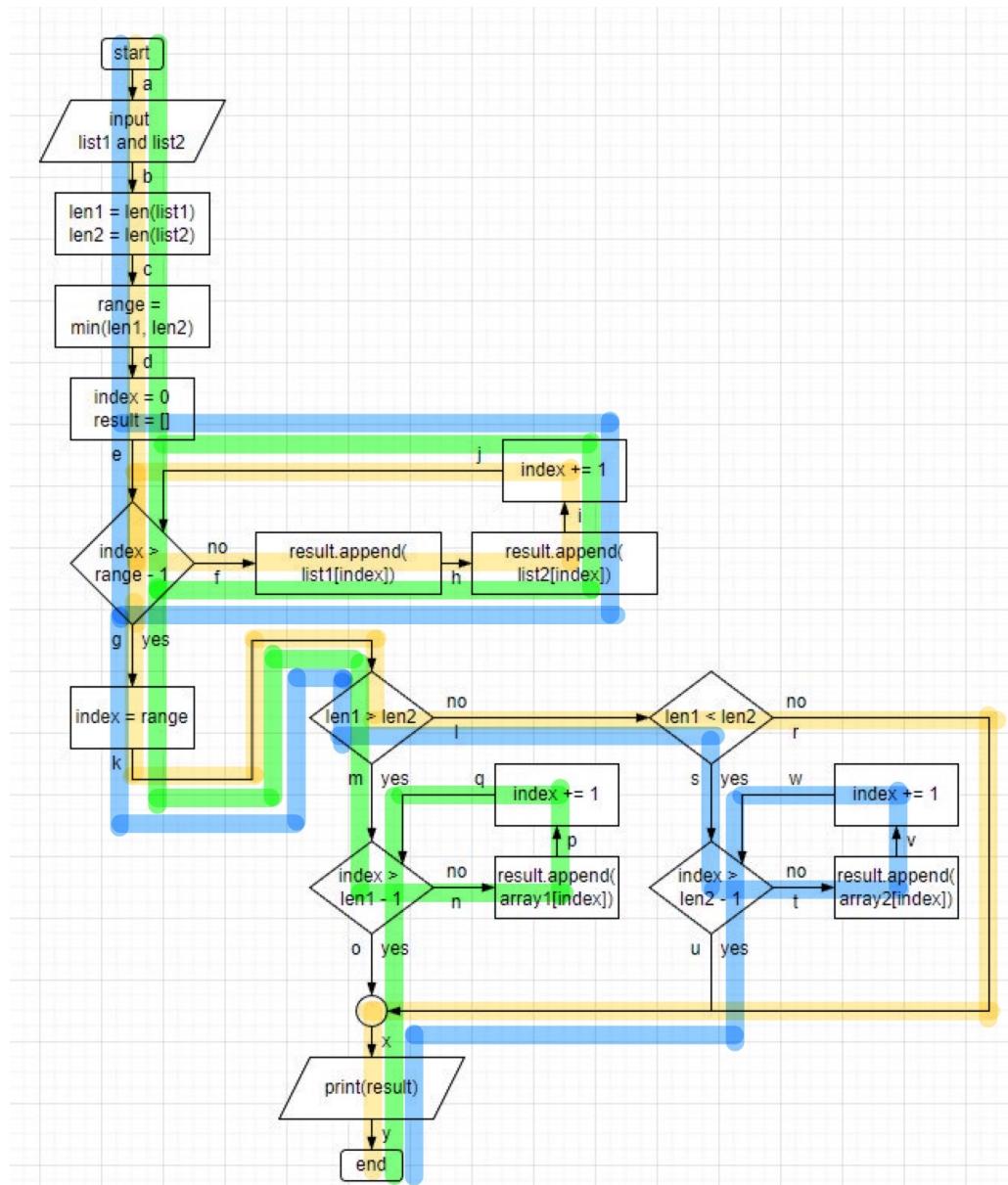
```

Test case

Test Case	Inputs	Expected Results	Path Coverage
1) There is no duplicate number in the given list	<ul style="list-style-type: none"> The given list = [1, 2, 3, 4, 5] The given value = 6 	<p>The list of pair numbers.</p> <p>result = [1, 5], [2, 4]</p>	a-b-c-d-e-g-h-i-j-k-n-i-j-k-n-i-j-k-n-i-j-l-m-n-o-p-e-g-h-i-j-k-n-i-j-k-n-o-p-e-g-h-i-j-k-n-i-j-k-n-o-p-e-g-h-o-p-f-q
2) There are duplicate numbers in the given list	<ul style="list-style-type: none"> The given list = [1, 2, 4, 4, 5] The given value = 6 	<p>The lists of pair numbers, some of them are the same pair number</p> <p>result = [1, 5], [2, 4], [2, 4]</p>	a-b-c-d-e-g-h-i-j-k-n-i-j-k-n-i-j-k-n-i-j-l-m-n-o-p-e-g-h-i-j-k-n-i-j-k-n-o-p-e-g-h-i-j-k-n-i-j-k-n-o-p-e-g-h-i-j-k-n-o-p-f-q
3) There is no pair number that is equal to the given value	<ul style="list-style-type: none"> The given list = [1, 2, 3, 4, 4] The given value = 9 	<p>The empty list</p> <p>result = []</p>	a-b-c-d-e-g-h-i-j-k-n-h-i-j-k-n-h-i-j-k-n-h-i-j-k-n-o-p-e-g-h-i-j-k-n-o-p-e-g-h-i-j-k-n-i-j-k-n-o-p-e-g-h-i-j-k-n-i-j-k-n-o-p-f-q

5) Combine two lists by alternatingly taking elements

Flowchart



Pseudocode

```

READ list1
READ list2
SET len1 to length of list1
SET len2 to length of list2
SET range to the minimum of length of list1 and list2
SET index to 0
SET result to []
FOR index < range - 1
    APPEND element in list1 at index to result
    APPEND element in list2 at index to result
    INCREMENT index by 1
ENDFOR

```

```

SET index to range
IF len1 > len2 THEN
    FOR index < len1 - 1
        APPEND element in list1 at index to result
        INCREMENT index by 1
    ENDFOR
ENDIF
IF len1 < len2 THEN
    FOR index < len2 - 1
        APPEND element in list2 at index to result
        INCREMENT index by 1
    ENDFOR
ENDIF
PRINT result

```

Test case

Test Case	Inputs	Expected Results	Path Coverage
1) the lengths of both lists is equal.	<ul style="list-style-type: none"> The given list 1 = [1, 2, 3] The given list 2 = [a, b, c] 	<p>Alternatingly list which element is taken by both lists</p> <p>Result : [1, a, 2, b, 3, c]</p>	a-b-c-d-e-f-h-i-j-f-h-i-j-f-h-i-g-k-l-r-x-y
2) the lengths of the first list is more than the lengths of the second list.	<ul style="list-style-type: none"> The given list 1 = [1, 2, 3, 4, 5, 6] The given list 2 = [a, b, c] 	<p>Alternatingly list then the left element of the first list</p> <p>Result : [1, a, 2, b, 3, c, 4, 5, 6]</p>	a-b-c-d-e-f-h-i-j-f-h-i-j-f-h-i-j-g-k-m-n-p-q-n-p-q-n-p-q-o-x-y
3) the lengths of the second list is more than the lengths of the first list.	<ul style="list-style-type: none"> The given list 1 = [1, 2, 3] The given list 2 = [a, b, c, d, e, f] 	<p>Alternatingly list then the left element of the second list</p> <p>Result : [1, a, 2, b, 3, c, d, e, f]</p>	a-b-c-d-e-f-h-i-j-f-h-i-j-f-h-i-j-g-k-l-s-t-v-w-t-v-w-t-v-w-u-x-y