

MIX PROGRAMMING PROBLEM SET

PROGRAMMING LOGICAL THINKING

Individual Work	Group Work
<ol style="list-style-type: none">1) You need to a flowchart and a pseudocode of a selected problem. I have selected a problem for each of you.2) You also have to prepare 2 trace tables of the program. If the program needs an input, you can select the input by yourself. Please select the input that would make a difference in the trace table.3) Your assignment is submit to my email P.SUGUNNASIL@GMAIL.COM and TA's email. The email must have a title of [953103][MixedProblem] and your student ID Ex. [953103][MixedProblem] 6221150104) You need to include<ul style="list-style-type: none">• A DOCX report including<ul style="list-style-type: none">○ The flowchart of the problem○ The pseudocode of the problem○ 2 trace tables with different inputs.○ A screenshot of the AppInventor 's code and interface.• AIA file of the problem.5) The submission day is 8th November 2019. If you are late, your score will be reduced by half.	<ol style="list-style-type: none">1) Group of 2 students.2) You need to submit flowchart and pseudocode of all problems.3) You report is written by hands on A4 paper. Please make sure that is report is readable.4) The submission day is 2nd December 2019. If you are late, your score will be reduced by half.

If you copy the work from your friend, both of you will get half of the score.

1. Create a program to receive first name, last name and gender from user. If the user is male, display "Hello, Mr." following by first name and last name. On the other hand, If the user is female, display "Hello, Miss " following by first name and last name.
2. Create a program to receive 5 number from user and display the average value.
3. Create a program to convert the distance in miles to kilometers.

4. Create a program to convert the currency in Baht to the currency in Dollar. (You have to receive both the amount of money and the exchange rate)
5. Create a program to receive a number and display the multiplication table of the input number from 1 to 12. (The repetition structure is not allowed.)
6. Create a program to receive the number of soap, the number shampoo and the number of toothpaste. The price of each item are 55.5, 20.75 and 70.25, respectively. Calculate and display the total price.
7. Create a program to receive 2 number and display only the **maximum** value.
8. Create a program to receive 2 number and display only the **minimum** value.
9. Create a program to receive 2 numbers from user and calculate the difference. The output will be in positive value only. (The pre-defined function is not allowed.)
10. Create a program to receive a whole number value from user. If the received number is larger than 50, display "Yeah, I pass the 103's midterm exam". Otherwise, you don't have to print anything.
11. Create a program to receive a text string from user. If the input text is "CM", display "This is Chiang Mai.". Otherwise, you don't have to print anything.
12. Create a program to receive a text string from user. If the input text is "CM", display "This is Chiang Mai.". If the input text is "BKK", display "This is Bangkok.". Otherwise, you have to print "Incorrect input".
13. Create a program to receive a whole number value from user. If the received number is larger than 50, display "Yeah, I pass the 103's midterm exam". Otherwise, the program has to display "I fail in the 103's midterm exam".
14. Create a program to receive a whole number from user. If the input number is an odd number, display "This number is odd number."
15. Create a program to receive a whole number from user. If the input number is an even number, display "This number is even number."
16. Create a program to receive a whole number from user. If the input number is an odd number, display "This number is odd number." If the input number is an even number, display "This number is even number."

17. Create a program to receive a whole number value from user. If the received number is larger than or equal to 80, display "Yeah, I get A in the 103's midterm exam". If the received number is larger than or equal to 70 and smaller than 80, display "Yeah, I get B in the 103's midterm exam". If the received number is larger than or equal to 60 and smaller than 70, display "Yeah, I get C in the 103's midterm exam". If the received number is larger than or equal to 50 and smaller than 60, display "Yeah, I get D in the 103's midterm exam". Otherwise, the program has to display "I fail in the 103's midterm exam".
18. Create a program to receive a whole number from user and display the corresponding month. For example, if user input 1, the program will display "this is January." When the input is out of range, the program will display "Sorry, the input is out of bound."
19. Create a program to print out the number 1 to number 10 using the repetition structure.
20. Create a program to receive a whole number and count from 1 to the input number. For example, the user input 5 and the program will display
1
2
3
4
5
Remark: The output can be put in different message box.
21. Create a program to print out the number 10 to number 1 using the repetition structure.
22. Create a program to receive a whole number and count from the input number down to 1. For example, the user input 5 and the program will display
5
4
3
2
1
Remark: The output can be put in different message box.
23. Create a program to receive 2 whole numbers from user and display all of the number in the length. For example, user inputs 1 and 15 and the program will display 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15. For simplicity, assume that the user always input the first number smaller than the second number.
24. Create a program to receive 2 whole numbers from user. The first number is the target value and the second number is the increasing step. The program will display the number from 0 up to the

target value. For each step, the program will increase by the step. The program will stop when the target is reached. For example, the user input 10 for target and 3 for increasing step. The program will display

0
3
6
9

25. Create a program to receive 2 whole numbers from user. The first number is the initial value and the second number is the decreasing step. The program will display the number from initial value down to the 0. For each step, the program will decrease the value by the step. The program will stop when the 0 is reached. For example, the user input 10 for target and 3 for increasing step. The program will display

10
7
4
1
-3

26. Create a program to keep receiving a whole number from user until user input a negative number. Display the summation and the average of the series.

27. Create a program to calculate the factorial number.

28. Create a program to receive a whole number from user and display the list of square value from 1 to the input (Assume that the user always input a whole number larger than 0). For example, the user input 4. The program will display.

1
4
9
16

29. Create a program to receive 2 whole numbers and display the cumulative addition on the number in the range. For example, the user has input 1 and 5. The program will display

1
3
6
10
15

Note: each line can be in separate message box (say method).

30. Create a program to receive a number and display the multiplication table of the input number from 1 to 12.
31. Create a program to receive a series of whole number and count only even number and display the result. The program will terminate when user inputs the negative value.
32. Create a program to receive a series of whole number and sum only odd number and display the result. The program will terminate when user inputs the negative value.
33. Create a program to calculate the final amount of deposit using compound interest.
Remark: The time period is years. You must determine the input, the output and the process by yourself. The use of pre-defined calculation method, such as power function, is prohibited.
34. Create a program to display the yearly interest using compound interest. (You have to determine the input and the process by yourself and you must use the repetition structure to determine the interest each year)
35. Create a program to receive 2 whole number and display the greatest common divisor (GCD).
Hint: Euclid algorithm
Remark: The use of pre-defined method is not allowed.
36. Create a program to receive 2 whole number and display the Least common denominator (LCD).
Remark: The use of pre-defined method and Euclid algorithm is not allowed.
37. Create a program to determine if the input value is prime number or not.
38. Create a program to receive a range of whole number, one for beginning value and one for terminal value, and display all of the prime number in the range.
39. Create a program to receive 3 whole numbers and display the numbers in ascending manner.
40. Create a program to receive 3 whole numbers and display the numbers in descending manner.
41. Create a program to receive 4 whole numbers and display the numbers in ascending manner.
42. Create a program to receive 4 whole numbers and display the numbers in descending manner.
43. Create a program to display all of the whole number from 1 up to the input whole number. The input whole number is divisible by the number in the list. If the user input 10, the program will display

2
5
10

44. Create a program to display a triangle with lines of * where the number of * is related to the number of line. The user needs to input the number of maximum line. If the user input 4, the program will display

```
*  
**  
***  
****
```

45. Create a program to display a triangle with lines of * where the number of * is related to the number of line. The user needs to input the number of maximum line. If the user input 4, the program will display

```
*  
**  
***  
****  
***  
**  
*
```

46. Create a program to display the line of number where the number is counting from 1 to number of line. The user needs to input the number of maximum line. If the user input 4, the program will display

```
1  
12  
123  
1234
```

47. Create a program to display the line of number where the number is counting from 1 to number of remaining line. The user needs to input the number of maximum line. If the user input 4, the program will display

```
1234  
123  
12  
1
```

48. Create a program to display only a number for each line where output of each line is located at the end of the line. The area before the number of line is filled with spaces where the number of

space is (number of line – 1). The user needs to input the number of maximum line. If the user input 4, the program will display

1
2
3
4

49. Create a program to a string from user and check if the input string is palindrome or not. For example, the input string is “abba”, the program shall display “The input is palindrome”. If the input string is “baba”, the program shall display “The input is not a palindrome”.
50. Create a program to receive 5 numbers from user and display the average value. If the inputted number is not positive, the inputted number will not be included in the calculation.