Assignment:2

Q.Write a menu driven program

1. Grade Calculation
2. Leap Year Check
3. Positive/Negative/Zero
4. Print Hello World
5. Sum of 2 numbers

Menu Driven Code :-

```
#include<stdio.h>

int main() {
   int choice, n, year, number, num1, num2;

   // Menu-driven program
   do {
      // Display the menu
      printf("\nMenu:\n");
      printf("1. Grade Calculation\n");
      printf("2. Leap Year Check\n");
      printf("3. Positive/Negative/Zero Check\n");
      printf("4. Print Hello World\n");
      printf("5. Sum of 2 numbers\n");
      printf("6. Exit\n");
      printf("Enter your choice (1-6): ");
      scanf("%d", &choice);

      switch(choice) {
         case 1:
            // Grade Calculation
            printf("Enter percentage marks of the student: ");
            scanf("%d", &n);

            if (n >= 91 && n <= 100) {
               printf("Grade A\n");
            } else if (n >= 81 && n <= 90) {
               printf("Grade B\n");
            } else if (n >= 61 && n <= 80) {
               printf("Grade C\n");
```

```
    } else if (n >= 51 && n <= 60) {
        printf("Grade D\n");
    } else {
        printf("FAIL\n");
    }
    break;

case 2:
    // Leap Year Check
    printf("\nPlease Enter any year you wish: ");
    scanf("%d", &year);

    if ((year % 400 == 0) || ((year % 4 == 0) && (year % 100 != 0))) {
        printf("\n%d is a Leap Year.\n", year);
    } else {
        printf("\n%d is not a Leap Year.\n", year);
    }
    break;

case 3:
    // Positive/Negative/Zero Check
    printf("Enter an integer: ");
    scanf("%d", &number);

    if (number > 0) {
        printf("%d is positive.\n", number);
    } else if (number < 0) {
        printf("%d is negative.\n", number);
    } else {
        printf("The number is zero.\n");
    }
    break;

case 4:
    // Print Hello World
    printf("Hello World\n");
    break;

case 5:
    // Sum of 2 numbers
    printf("Enter num1: ");
    scanf("%d", &num1);
    printf("Enter num2: ");
```

```
            scanf("%d", &num2);
            printf("The sum of %d and %d is: %d\n", num1, num2, num1 + num2);
            break;

        case 6:
            // Exit
            printf("Exiting the program...\n");
            break;

        default:
            printf("Invalid choice. Please choose a valid option.\n");
      }
   } while(choice != 6); // Repeat the menu until the user chooses to exit

   return 0;
}
```

Output:-

```
Menu:
1. Grade Calculation
2. Leap Year Check
3. Positive/Negative/Zero Check
4. Print Hello World
5. Sum of 2 numbers
6. Exit
Enter your choice (1-6): 1
Enter percentage marks of the student: 78
Grade C

Menu:
1. Grade Calculation
2. Leap Year Check
3. Positive/Negative/Zero Check
4. Print Hello World
5. Sum of 2 numbers
6. Exit
Enter your choice (1-6): 2

Please Enter any year you wish: 2020

2020 is a Leap Year.

Menu:
1. Grade Calculation
2. Leap Year Check
3. Positive/Negative/Zero Check
4. Print Hello World
5. Sum of 2 numbers
6. Exit
Enter your choice (1-6): 3
Enter an integer: 65
65 is positive.
```

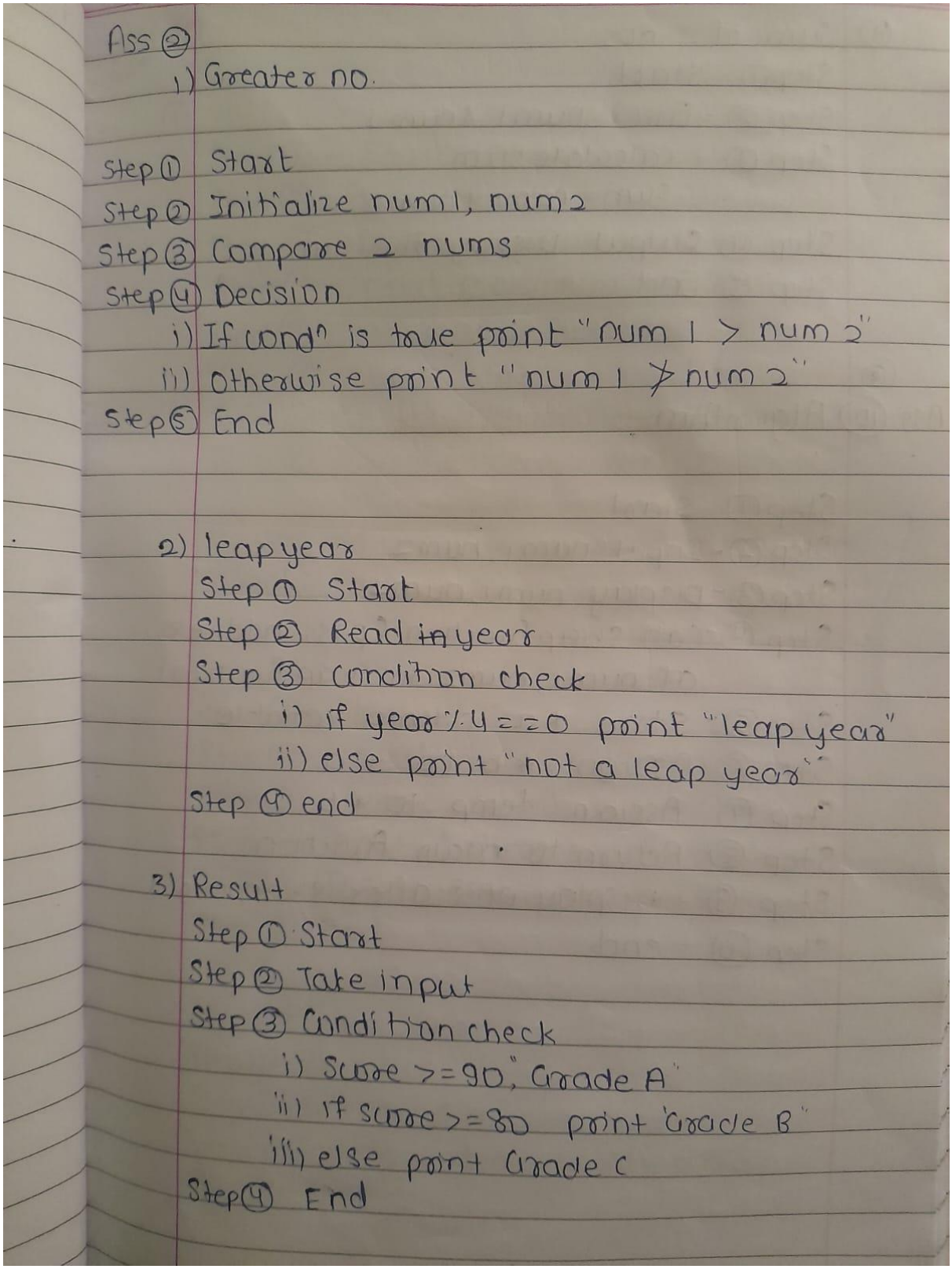
```
Menu:
1. Grade Calculation
2. Leap Year Check
3. Positive/Negative/Zero Check
4. Print Hello World
5. Sum of 2 numbers
6. Exit
Enter your choice (1-6): 4
Hello World

Menu:
1. Grade Calculation
2. Leap Year Check
3. Positive/Negative/Zero Check
4. Print Hello World
5. Sum of 2 numbers
6. Exit
Enter your choice (1-6): 5
Enter num1: 40
Enter num2: 40
The sum of 40 and 40 is: 80

Menu:
1. Grade Calculation
2. Leap Year Check
3. Positive/Negative/Zero Check
4. Print Hello World
5. Sum of 2 numbers
6. Exit
Enter your choice (1-6): 6
Exiting the program...

Process returned 0 (0x0)   execution time : 49.139 s
Press any key to continue.
```

Algorithm :-



Ass ②

1) Greater no.

Step ① Start
Step ② Initialize num1, num2
Step ③ Compare 2 nums
Step ④ Decision
i) If cond^n is true print "num 1 > num 2"
ii) Otherwise print "num 1 $\not>$ num 2"
Step ⑤ End

2) leap year
Step ① Start
Step ② Read ~~in~~ year
Step ③ condition check
i) if year % 4 == 0 print "leap year"
ii) else print "not a leap year"
Step ④ end

3) Result
Step ① Start
Step ② Take input
Step ③ Condition check
i) Score >= 90, Grade A
ii) if score >= 80 print Grade B
iii) else print Grade C
Step ④ End

1) Sum of 2 nos.

Step ① - Start

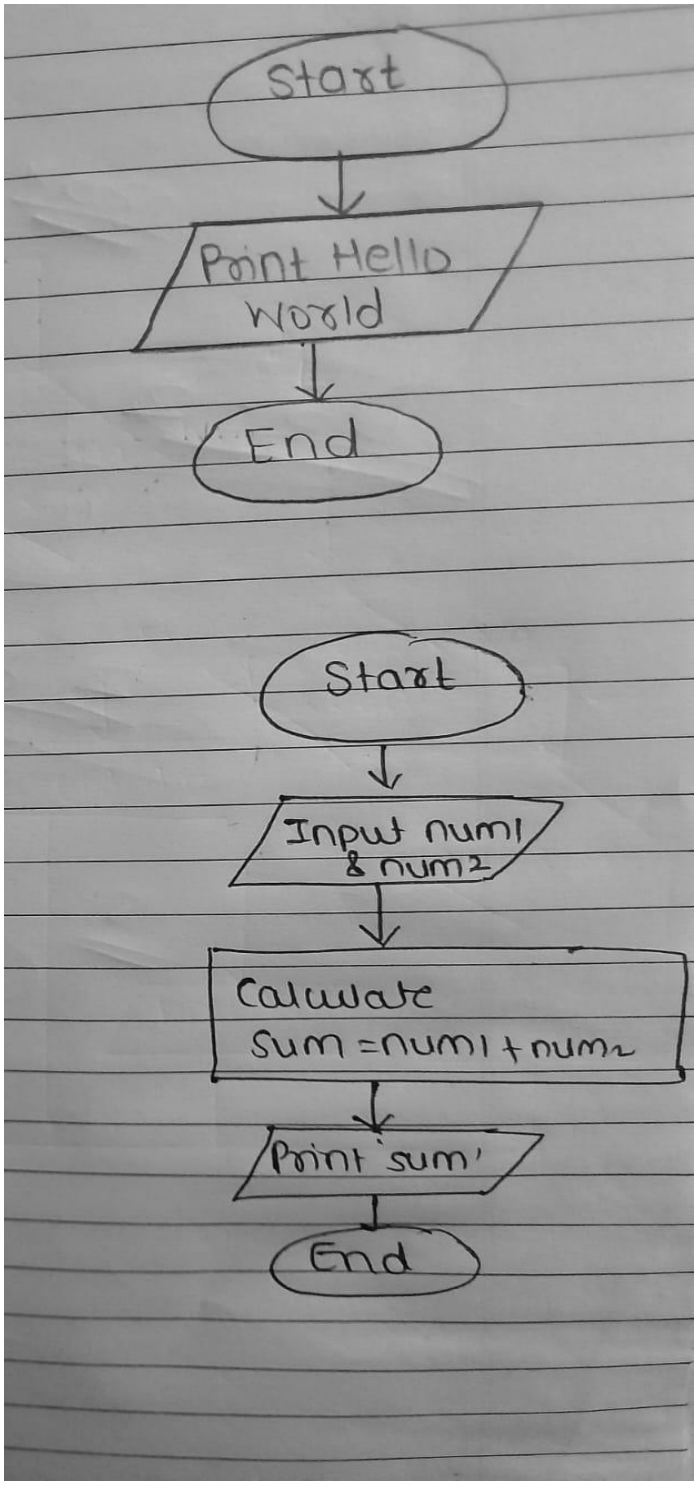
Step ② - Enter num1 & num2

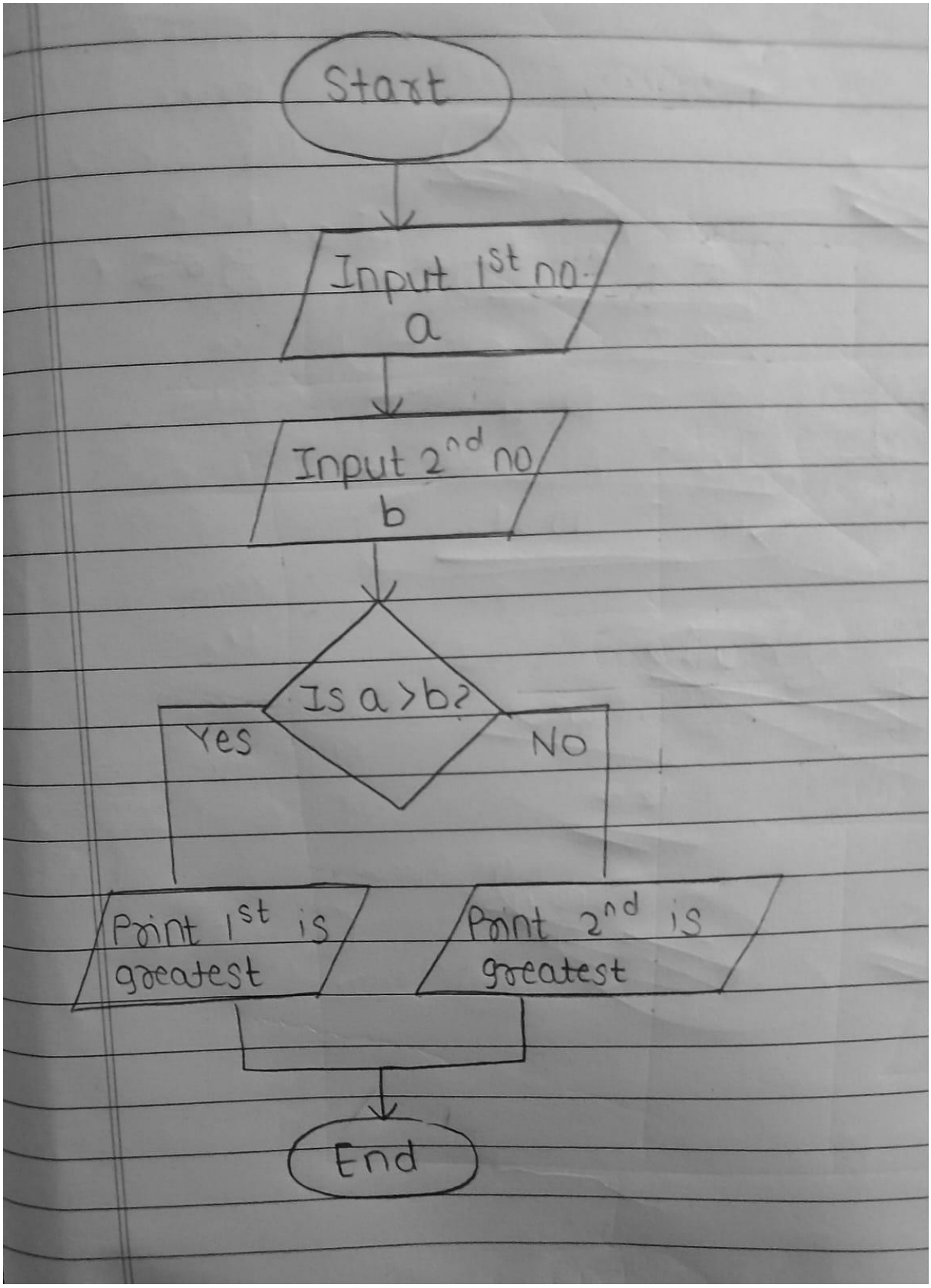
Step ③ - Calculate sum

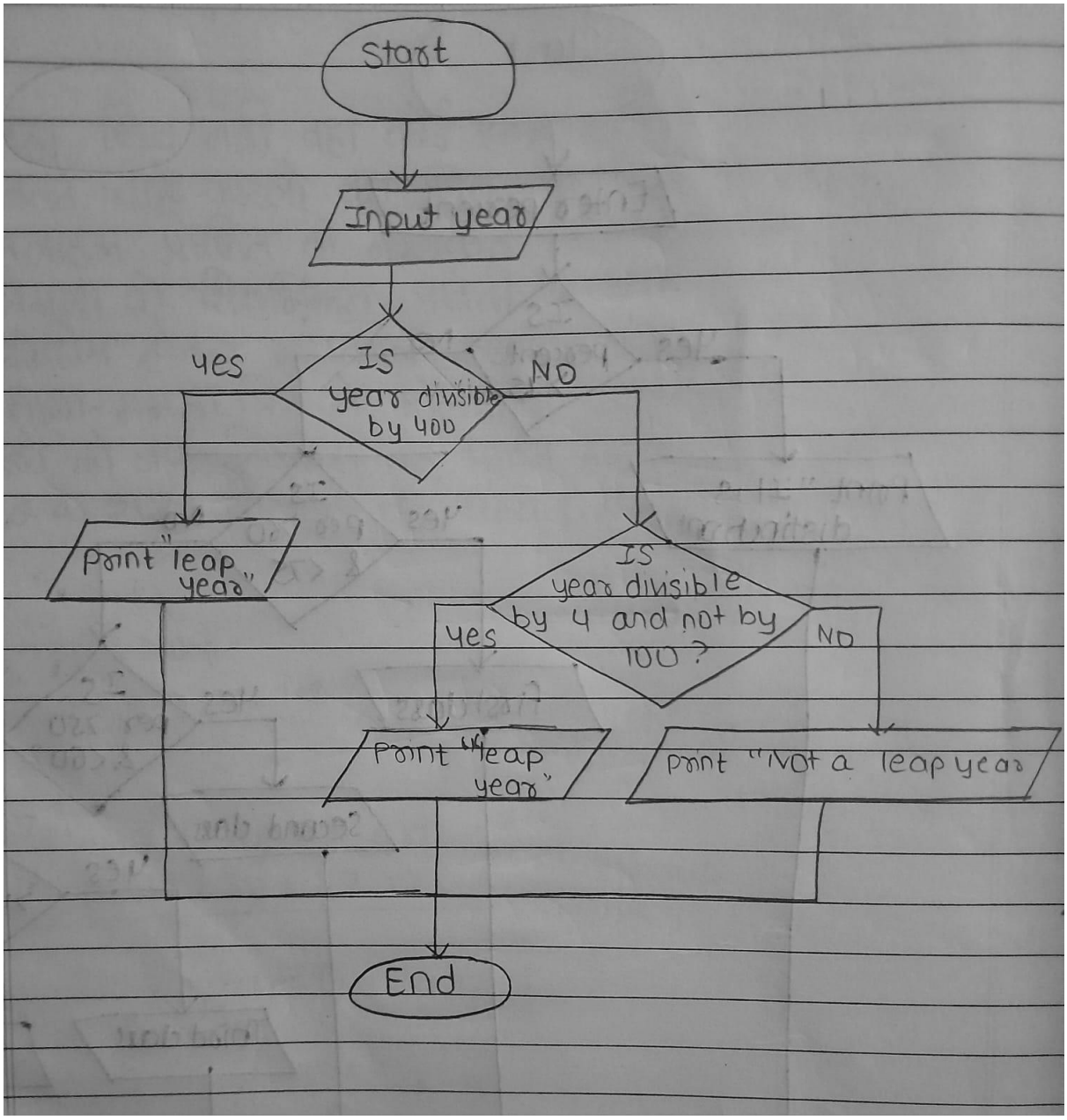
sum = num1 + num2

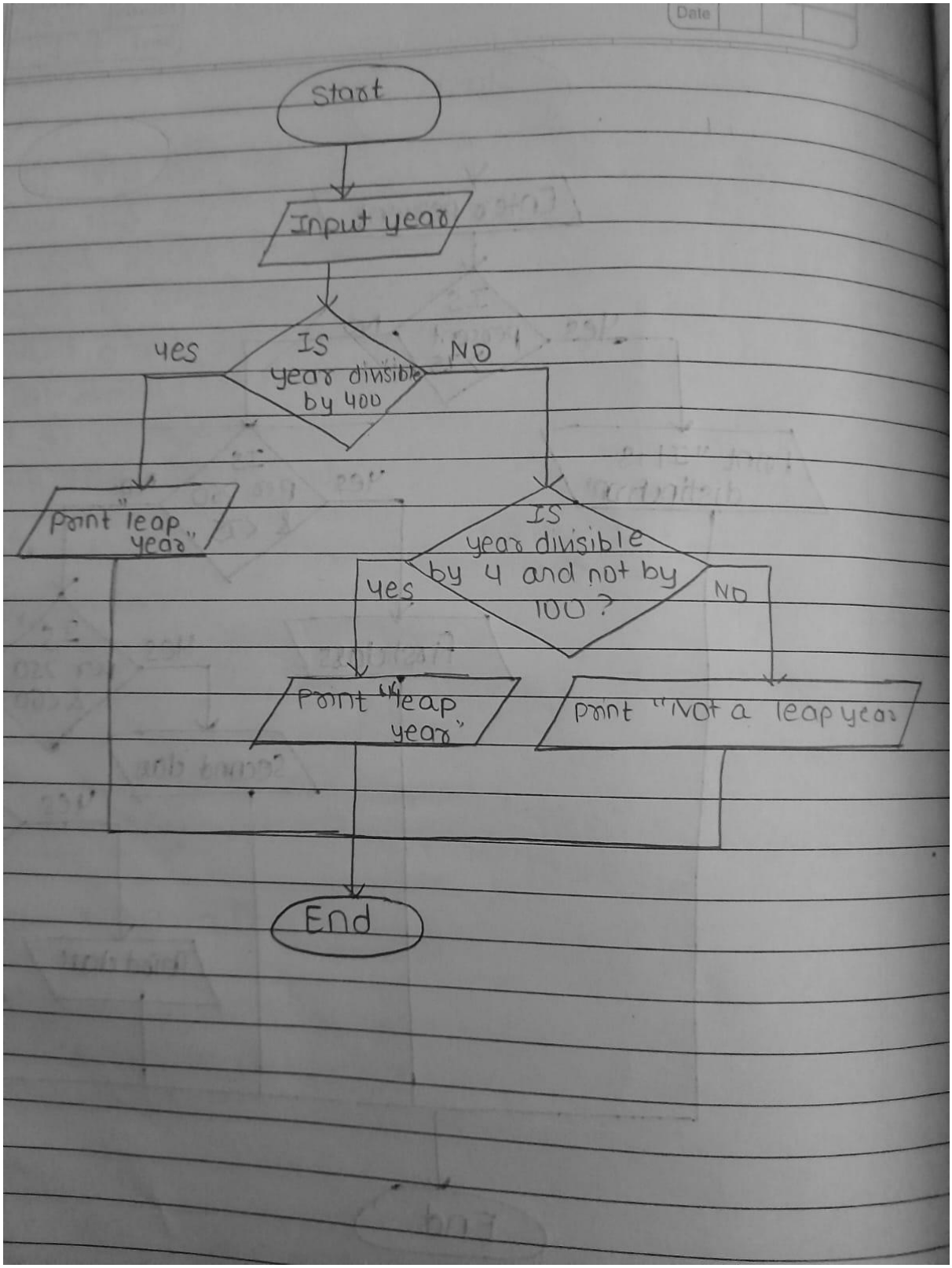
Step ④ - Output Display the sum

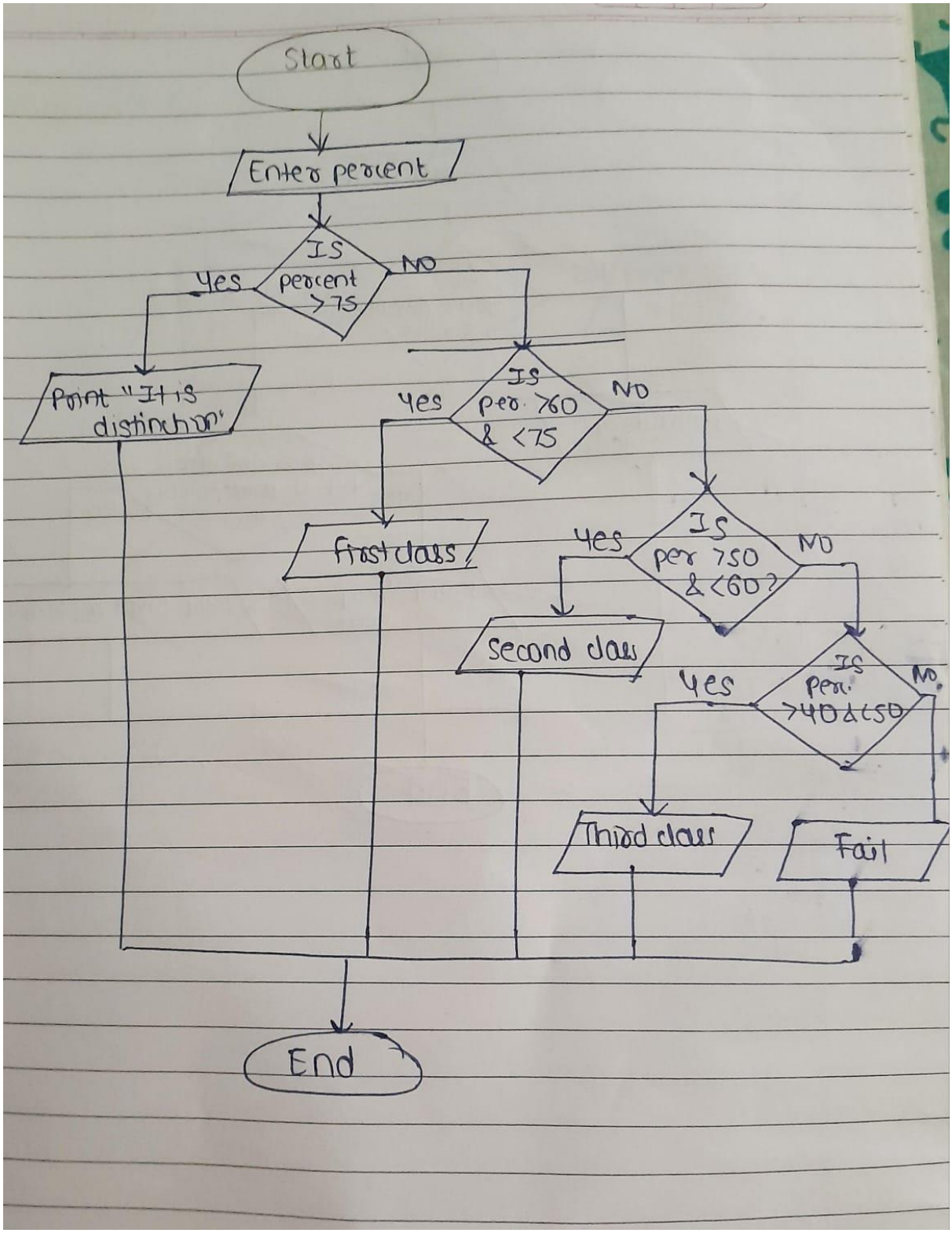
Step ⑤ End


Start
Print Hello World
End
Start
Input num1 & num2
Calculate
Sum = num1 + num2
Print 'sum'
End

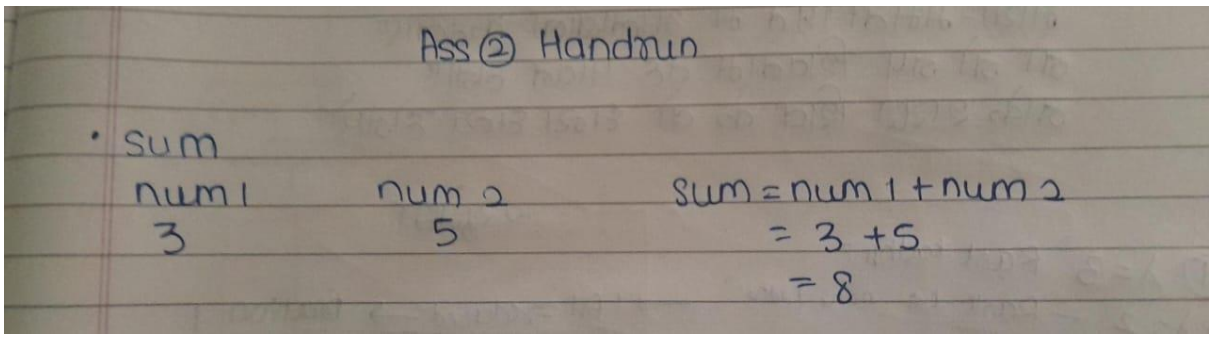

Start
Input 1st no.
a
Input 2nd no
b
Is a>b?
Yes
No
Print 1st is greatest
Print 2nd is greatest
End


Start
Input year
IS year divisible by 400
yes
NO
Print "leap year"
IS year divisible by 4 and not by 100 ?
yes
NO
Print "leap year"
print "Not a leap year
End


Start
Input year
IS year divisible by 400
yes
NO
print "leap year"
IS year divisible by 4 and not by 100 ?
yes
NO
print "leap year"
print "Not a leap year
End


Start
Enter percent
IS percent >75
Yes
NO
Print "It is distinction"
IS per >60 & <75
Yes
NO
First class
IS per >50 & <60?
Yes
NO
Second class
IS Per. >40 & <50
Yes
No.
Third class
Fail
End

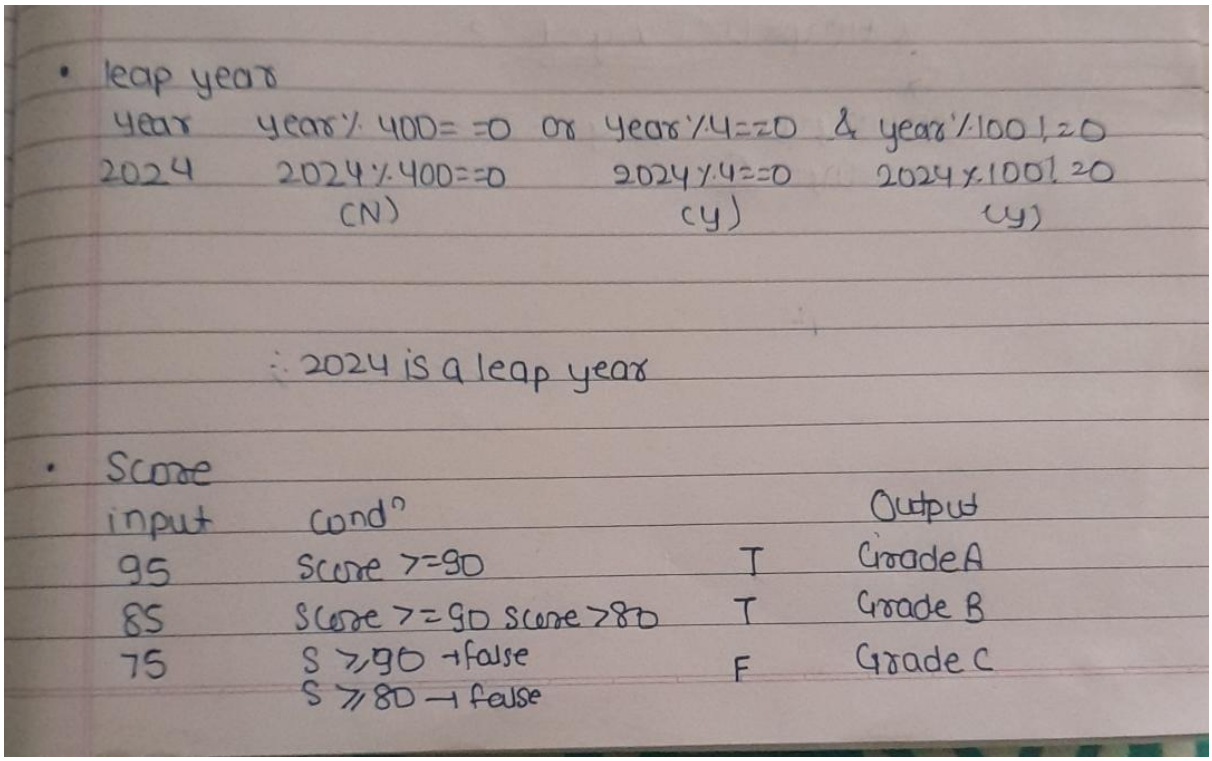
Handrun-



Ass ② Handrun

- sum

num1	num 2	sum = num 1 + num 2
3	5	= 3 + 5
		= 8



- leap year

year	year % 400 == 0	or	year % 4 == 0	&	year % 100 != 0
2024	2024 % 400 == 0 (N)		2024 % 4 == 0 (y)		2024 % 100 != 0 (y)

∴ 2024 is a leap year

- Score

input	cond°		Output
95	score >= 90	T	Grade A
85	score >= 90 score > 80	T	Grade B
75	S >= 90 → false S >= 80 → false	F	Grade C