Fwd: Flowchart-Questions

1 message

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---------- Forwarded message ---------
From: **Chhotu kumar** <chhotu22@navgurukul.org>
Date: Tue, Oct 17, 2023, 12:48 PM
Subject: Flowchart-Questions
To: shikhar shukla <shikhar23@navgurukul.org>

Original Code	Statement	Code
FC001	Create a program that asks the user for two numbers, adds them together, and then displays the result. Here are a few examples of inputs and expected outputs: Test Case 1: Input: Number 1: 5 Number 2: 3 Output: Sum: 8 Test Case 2: Input: Number 1: -2 Number 2: 7 Output: Sum: 5	NFC2
FC002	Problem: Create a program that takes two numbers from the user and calculates their average. Test Cases: 1. Input: 5, 7 Output: Average of 5 and 7 is 6. 2. Input: 10, 20 Output: Average of 10 and 20 is 15.	NFC3
FC004	Problem Statement: write a program to calculate the area of a triangle based on its base and height. You need to create a program that takes the base and height of the triangle as input from the user and then calculates and displays the area of the triangle. Test Cases: 1. If the base is 6 units and the height is 4 units, the area of the triangle is expected to be 12 square units. 2. For a triangle with a base of 9 units and a height of 7 units, the calculated area should be 31.5 square units. 3. When the base is 12 units and the height is 8 units, the area of the triangle should be 48 square units.	NFC5
FC005		NFC7
FC006	You have some money (let's call it "P") that you want to invest. You'll leave it invested for a certain number of years (let's call it "N"). Every year, the money you have invested will grow by a certain percentage of the original amount, which is determined by the annual interest rate (let's call it "I").	NFC8

	The formula to calculate the total amount of money you'll have after "N" years is: T = P * (1 + I/100)^N "T" is the total amount of money you'll have after "N" years. "P" is the initial amount of money you're investing. "I" is the annual interest rate (in percentage). "N" is the number of years the money is invested for. Now, let's take some example test cases to understand how this works: Test Case 1: - Initial amount (P): ₹1000 - Annual interest rate (I): 5% - Number of years (N): 3 Calculating: T = 1000 * (1 + 5/100)^3 = ₹1157.63 After 3 years, if you invest ₹1000 at an annual interest rate of 5%, you'll have ₹1157.63. Test Case 2: - Initial amount (P): ₹5000 - Annual interest rate (I): 8% - Number of years (N): 6 Calculating: T = 5000 * (1 + 8/100)^6 = ₹7934.37 After 6 years, if you invest ₹5000 at an annual interest rate of 8%, you'll have ₹7934.37.	
FC007	Write a program to show how to swap the values of two variables. input : A = 10 B = 20 output : A = 20 B = 10	NFC32
FC008	Write a program to show how to swap the values of two variables without using a third variable. input : A = 10 B = 20 output : A = 20 B = 10	NFC33
FC009	Problem Statement: Write a program that asks the user for their name, then displays a welcome message on the screen in the format "Welcome [name]". Test Cases: 1. Input: Alice Output: Welcome Alice 2. Input: Bob Output: Welcome Bob	NFC1
FC010	write a program that can perform four basic operations (addition, subtraction, division, and multiplication) on two given whole numbers, A and B. Test Case: Inputs: A = 12, B = 4 Output: Addition: The sum of 12 and 4 is 16. Subtraction: The result of subtracting 4 from 12 is 8. Multiplication: The product of 12 and 4 is 48. Division: When 12 is divided by 4, the quotient is 3.	NFC4
FC011	Write a program to calculate the area and perimeter of a rectangle.(Input length and breadth of the rectangle from the user) Test Case1: You have a rectangle with a length of 8 units and a width of 5 units. Expected Output:	NFC9

	Area: 8 * 5 = 40 square units Perimeter: 2 * (8 + 5) = 26 units Test Case2: For another rectangle, the length is 12.5 units and the width is 6 units. Expected Output: Area: 12.5 * 6 = 75 square units Perimeter: 2 * (12.5 + 6) = 37 units	
FC012	Write a program to calculate the area and perimeter of a square.(Input side length of the square from the user) Test Case 1: Input: Side length = 5 Output: Area = 25 square units, Perimeter = 20 units Test Case 2: Input: Side length = 8 Output: Area = 64 square units, Perimeter = 32 units	NFC10
FC013	A triangle is a shape with three sides. There's a special number called the "semiperimeter" that's helpful when working with triangles. To calculate the semiperimeter, you need to know the lengths of all three sides of the triangle. You can get these lengths from the person using the program. Once you have these three numbers, you perform a few calculations to find the semiperimeter of the triangle. Test Case 1: Input: Side 1: 5 Side 2: 7 Side 3: 9 Output: The semiperimeter is: 10.5 Test Case 2: Input: Side 1: 3 Side 2: 3 Side 3: 3 Output: The semiperimeter is: 4.5	NFC11
FC014	You want to find out how much space is inside a circle this space is also called as Area. To do this, you need to know the length from the center of the circle to its edge. This length is called the radius. Your task is to create a program that will print the area of circle. (take π = 3.14) formul to find the area of circle is :- π * (radius)^2 Test Case 1 : input : radius = 5 output : Area of circle with radius 5 is : 78.5	NFC12
FC015	You want to find out the diameter of a circle when you know its circumference. The diameter is the distance across the circle through its center. To do this, you need to create a program that takes the circumference of the circle as input from the user and then calculates the diameter of the circle. (take π = 3.14) formula : Diameter = Circumference / π Input: 10 Expected Output: Diameter = 3.183 Input: 25.12 Expected Output: Diameter = 8 Input: 37.699 Expected Output: Diameter = 12	NFC13
FC016	write a program to calculate the surface area of a cube. A cube is a box-like shape where all sides are the same length. There are two types of surface areas we can calculate: the lateral surface area and the total surface area. 1. Lateral Surface Area: This is the sum of the areas of the four sides (faces) of the cube that don't include the top and bottom. It's like the wrapping paper you would need to cover the sides of the cube. 2. Total Surface Area: This is the sum of the areas of all six sides (faces) of the cube. It includes both the lateral sides, top, and bottom. Imagine covering the entire cube with wrapping paper. Test Cases: 1. Input: Side length = 5 units output : Lateral Surface Area: 4 * (5 * 5) = 100 square units	NFC14

	Total Surface Area: 6 * (5 * 5) = 150 square units 2. Input: Side length = 3 units output : Lateral Surface Area: 4 * (3 * 3) = 36 square units Total Surface Area: 6 * (3 * 3) = 54 square units 3. Input: Side length = 7 units output : Lateral Surface Area: 4 * (7 * 7) = 196 square units Total Surface Area: 6 * (7 * 7) = 294 square units	
FC017	You have a cube, which is a 3D shape with all sides of equal length. Your task is to write a program that can find the volume of this cube. To do that, you need to know the length of one side of the cube. Input: The length of one side of the cube. This will be provided by the user. Output: The program should calculate and display the volume of the cube using the given side length. Test Cases: 1. Input: Side length = 3 Output: Volume = 27 Explanation: If all sides are 3 units long, then the cube's volume is 3 * 3 * 3 = 27 cubic units. 2. Input: Side length = 5 Output: Volume = 125 Explanation: If all sides are 5 units long, then the cube's volume is 5 * 5 * 5 = 125 cubic units. 3. Input: Side length = 0 Output: Volume = 0 Explanation: If the side length is 0, then the cube's volume is also 0.	NFC15
FC018	Imagine a rectangular box, like a shoebox, which is called a cuboid. It has three different lengths: length, width, and height. The problem is about finding two things: 1. Lateral Surface Area: This is the total area of the four sides of the cuboid, excluding the top and bottom faces. 2. Total Surface Area: This includes the area of all six sides of the cuboid. formula for lateral surface area of cuboid : = 2 * height * (length + width) formula for Total surface area of cuboid : = 2 * (length * width + width * height + height * length) You need to write a program that takes the three side lengths (length, width, and height) of the cuboid from the user as input and calculates both the lateral surface area and the total surface area. Test Cases: Test Case 1: Length: 5 unit Width: 3 units Height: 4 units Lateral Surface Area: 2 * 4 * (5 + 3) = 64 Total Surface Area: 2 * (5 * 3 + 3 * 4 + 4 * 5) = 94	NFC16
FC019	Write a program to calculate the volume of a cuboid. (Input the side lengths of the cuboid from the user) formula for volume of cuboid = Length × Width × Height Test case 1: Length: 5 units Width: 3 units Height: 2 units Expected Volume: 30 cubic units Test Case 2: Length: 10 units Width: 4 units Height: 6 units Expected Volume: 240 cubic units	NFC17
FC020	You need to create a program that takes a positive number as input from the user and then displays the last digit of that number. Test Cases: Input: 6789 Output: Last digit is 9 Input: 0 Output: Last digit is 0	NFC18

	Input: 87432 Output: Last digit is 2	
FC021	Write a program to calculate remainder when a is divided by b. test case : 1 input : a = 12 b = 3 output : 0 test case 2 input : a = 12 b = 5 output : 2	NFC19
FC022	Write a program to calculate the quotient when a is divided by b. test case : 1 input : a = 12 b = 3 output : 4 test case 2 input : a = 12 b = 2 output : 6	NFC20
FC023	You want to create a program that calculates the selling price of a product when you know the Maximum Retail Price (MRP) and the discount percentage. The program should take inputs from the user, the MRP, and the discount percentage, and then it should calculate and display the selling price of the product after applying the discount. Test Cases: 1. MRP: ₹100, Discount: 10% Input: MRP = ₹100, Discount = 10% Output: Selling Price = ₹90 (10% off from ₹100) 2. MRP: ₹50, Discount: 25% Input: MRP = ₹50, Discount = 25% Output: Selling Price = ₹37.50 (25% off from ₹50) 3. MRP: ₹200, Discount: 15% Input: MRP = ₹200, Discount = 15% Output: Selling Price = ₹170 (15% off from ₹200) Remember, the selling price can be calculated using the formula: Selling Price = MRP - (Discount / 100) * MRP	NFC21
FC024	Write a program to calculate the square of a number. Testcase : 1 input : number = 12 output : square = 144 test case : 2 input: number = 10 output : square = 100	NFC22
FC025	Write a program to calculate the cube of a number. Testcase : 1 input : number = 3 output : square = 27 test case : 2 input: number = 10 output : square = 1000	NFC23
FC026	Write a program to calculate how many books we can buy if we have x Rs . (Cost of a book = Rs. y)(input x,y from user) testcases : 1 input : x = 30 , y = 10 output : 3	NFC24

	testcase :2 input : x = 100,y = 120 output : 0	
FC027	write a program to find out how many Pens can be bought if one pen costs Rs. 5 take the money from the user. testcases :1 input : 30 output : 6 testcase :2 input : 50 output : 10	NFC25
FC028	Write a program to calculate the total marks obtained by a student in examination. (Subjects : - Hindi, Maths, English, Science, Computer)(Input marks of all 5 subjects from the user) testcase : 1 input : Hindi = 30 Maths = 40 English = 20 Computer = 100 output: 190	NFC26
FC029	Write a program to calculate the percentage of each subject in the above question. input: Hindi = 30 Maths = 40 English = 20 Computer = 100 output: Hindi = 7.5 Maths = 10 English = 5 Computer = 25	NFC27
FC030	Write a program to determine the acceleration due to gravity (g), where g can be obtained from the following formula: T = 2π(l/g)^(1/2) where T = Time period of a simple pendulum And l = Effective length of the simple pendulum (Input T and l from user)	NFC28
FC031	A store sells Vadapavs & Samosas. They want a system where they enter the number of Vadapavs (V) and Samosas (S) a customer buys and a bill with the final price is automatically calculated and displayed. A Vadapav costs 12₹, while a Samosas costs 15₹. Write a program to create such a system. input : no_of_samosas = 3 no_of_vadapavs = 2 output: final_price : 69	NFC29
FC032	Write a program to obtain the Fahrenheit equivalent of a temperature given in Celsius where the relationship between the two scales of temperature is C/5 = (F-32)/9 input : celsius : 30 output : 86	NFC30
FC033	You have two numbers, A and B. Your task is to find the largest number that is less than A and can be divided evenly by B. Can you figure out that number? input : A = 15 B = 4 output : 12 input : A = 27 B = 5 output : 25	NFC31
	Take two numbers from user A and B. and check whether A is greater than B or A is less than B or A is equal to B. Test case - 1 Input : A = 5 B = 8 Output : A is less than B	

	Test case - 2 Input : A = 8 B = 5 Output : A is greater than B Test case - 3 Input : A = 8 B = 8 Output : A is equal to B	
FC034	Write a program to show how to determine the greater of the three given numbers. testcase: if we have given three numbers 10 and 100,20 then output should be 100 as it is greater in those three numbers.	NFC34
FC039	Write a program to take two sides as input and check whether it is a rectangle or a square. testcase: if user given two sides as one side is 40 and another side is 40. then output should be "Square" if user given two sides as one side 40 and another is 20 then output should be "Rectangle".	NFC35
FC040	Test Case 1: SP = 500, CP = 400 Calculation: Profit = SP - CP = 500 - 400 = 100 Result: Profit of 100 Test Case 2: SP = 800, CP = 950 Calculation: Loss = CP - SP = 950 - 800 = 150 Result: Loss of 150 Test Case 3: SP = 300, CP = 300 Calculation: Profit = SP - CP = 300 - 300 = 0 Result: No profit, no loss	NFC36
FC041	Write a program to check whether a number is the smallest 4 digit number.	NFC37
FC042	Write a program to check whether a number is the largest 3 digit number.	NFC38
FC043	Write a program to check whether a number is divisible by 7 or not. testcase: input: 49 output: YES	NFC39
FC044	Write a program to check whether a number is even or odd. input: 40 output: Even input: 23 output: Odd	NFC40
FC045	Write a program to check whether the last digit of a number (entered by user) is divisible by 3 or not. input: 353 output: Yes	NFC41

FC046	Write a program to check whether a person is eligible for voting or not. Age for voting is 18 years. input: 49 output: YES input: 10 output: No	NFC42
FC047	Write a program to display "Hello" if a number entered by the user is a multiple of five , otherwise print "Bye". input: 10 output: Hello input: 8 output: Bye	NFC43
FC049	Write a program to check whether a number entered is a three digit number or not. input: 374 output: YES input: 20 output: No	NFC44
FC050	Write a program to check whether a person is a senior citizen or not(Senior citizen Age=60). input: 60 output: YES input: 30 output: NO	NFC45
FC051	Accept the temperature in degrees Celsius of water and check whether it is boiling temperature or not (boiling point of water is 100 C) input: 100 output: YES input: 30 output: NO	NFC46
FC053	A shop will give a discount of 10% if the cost of the purchased quantity is more than 1000. Ask the user for quantity, Suppose, one unit will cost 100. Judge and print total cost for the user. input: 11 output 990 as total price will be 1100 because each unit costs 100 and total price is greater than 1000. so the 10 percent discount will applied and after applying this discount the answer will be 990. input: 4 output: 400 here quantuty he purchased is 4 it means purchased cost is 400 which is not greater than 1000 . so discount will not be applied.	NFC47
FC054	A company decided to give a bonus of 5% of his salary to an employee if his/her year of service is more than 5 years. Ask users for their salary and year of service and print the bonus amount. input: 40,000 salary 6 years	NFC48

	output: 2000	
FC055	A student will not be allowed to sit in an exam if his/her attendance is less than 75%. Take following input from the user. Number of classes held. Number of classes attended. And print, percentage of class attended. Is the student allowed to sit in the exam or not. Test cases: Input: Class held = 50 Class attended = 37 Output: Not Allowed Input: Class held: 70 Class attended: 60 Output: Allowed	NFC49
	Write a program to check whether a number is the 4 digit number and it should be divisible by 7 and its quotient after dividing with 7 should be even. Testcase 1 : Input : 9999 Output: No (because 9999 is 4 digit number but it is not divisible by 7)	
FC056	Take an integer N as input and check whether it ends with 3 or 7. If it ends with 3, print “ends with 3”, if it ends with 7, print “ends with 7”, otherwise print the number itself. Input: Output: N=12 12 N=137 ends with 7 N=9343 ends with 3	NFC50
FC057	Write a program to take two numbers as input and print their difference if the first number is greater than the second number, otherwise print their sum. Input: Output: a=9,b=7 2 a=5,b=11 15	NFC51
FC058	Write a program to obtain a number N and increment its value by 1 if the number is divisible by 4, otherwise, decrement its value by 1. Test cases: Input: 16 Output: 17 Input: 27 Output: 26	NFC52
FC059	Write a program to obtain 2 numbers (A and B) and an arithmetic operator (C) and then design a calculator depending upon the operator entered by the user. Test cases: Input: A: 4 B: 13 C: '*' Output: 52	NFC53

FC060	Write a program to input the length (L) and breadth (B) of a rectangle and output whether its area is greater or perimeter is greater or both are equal. Test cases: Input: Length: 10 Breadth: 2 Output: Perimeter is greater.	NFC54
FC062	Write a program to input the month number and print the number of days in that month. Take an input from the user between 1 and 12 inclusive. (Output 28 days for the month of February) Test cases: Input: 4 Output: 30 Input: 2 Output: 28	NFC55
FC063	Write a program to input a number and output whether a number is negative, positive or zero. Test cases: Input: 6 Output: Positive Input: 0 Output: Zero	NFC56
FC064	Input any city from the user and display the monument of that city. City Monument Delhi Red Fort Agra Taj Mahal Jaipur Jal Mahal For any other city as an input, print "No monument in the database for this city.". Test cases: Input: Delhi Output: Red Fort Input: Mumbai Output: No monument in the database for this city.	NFC57
FC065	Write a program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer out of 100. Calculate percentage and grade according to following: Percentage >= 90% : Grade A Percentage >= 80% : Grade B Percentage >= 70% : Grade C Percentage >= 60% : Grade D Percentage >= 40% : Grade E Percentage < 40% : Grade F Test cases: Input: 78 54 85 75 88	NFC58

	Output: Grade C Explanation: Percentage of marks obtained by this user is 76 %. Hence, the grade is C.	
FC066	Write a program to input basic salary of an employee and calculate its Gross salary according to following: (Gross salary is the sum of basic salary, HRA, and DRA) Basic Salary <= 10000 : HRA = 20%, DA = 80% Basic Salary <= 20000 : HRA = 25%, DA = 90% Basic Salary > 20000 : HRA = 30%, DA = 95% Test cases: Input: 17000 Output: 36550 Explanation: Since the basic salary lies in the bracket 10000 <= basic salary <= 20000, the HRA is equal to 25% of the salary = 4250, and the DRA is equal to 90% of the basic salary = 15300. Hence the total salary is 17000+15300+4250 = 36550	NFC59
FC068	Roller Coasters require children to have a minimum height of 5 feet. Any child below this height is generally not allowed on them. Write a program to accept a child's height in inches and display if he or she will be allowed to ride or not. Test cases: Input: 65 Output: Yes Explanation: 65 inches in feet is equal to 5 ft 5 inches. Since the height is greater than 5 ft, the user is allowed on the roller coater	NFC60
FC069	Write a program to accept the cost price of a bike and display the road tax to be paid according to the following criteria : Cost price (in Rs) Tax > 100000 15 % > 50000 and <= 100000 10% <= 50000 5% Test cases: Input: 16000 Output:2400 Explanation: Since the price of the bike fallws in the bracket > 10000, the road tax is equal to 15% of the price = 2400	NFC61
FC070	Write a program to find a maximum between three numbers. (Use minimum number of comparisons without using logical operators - and, or) Test cases: Input: 5 16 3 Output: 16	NFC62
FC071	Input a date in with day, month and year in different lines and output if it is valid. If its valid, print valid, else print invalid. (Hint: The year in the date must be greater than zero, the months must lie between 1 and 12, and the days must lie between 1 and 31, depending on the month number. If the year is a leap year February will have 29 days as opposed to 28 in non leap years) Test cases: Input: 26 4 2023 Output: Valid Input: 29	NFC73

	2 2023 Output: Invalid	
FC072	Write a program to input electricity unit charges and calculate the total electricity bill according to the given condition: For the first 50 units Rs. 0.50/unit For next 100 units Rs. 0.75/unit For the next 100 units Rs. 1.20/unit For unit above 250 Rs. 1.50/unit An additional surcharge of 20% is added to the bill Test cases: Input number of units: 200 Output: 192 Explanation: Cost for first 50 units = 25, cost for next 100 units = 75, cost for remaining 50 units = 50 * 1.2 = 60. Total cost = 25+75+60 = 160. Additional surcharge of 20% = 32. Hence total cost of 200 units = 160 + 32 = 192	NFC63
FC073	Write a program to calculate the electricity bill (Accept the number of units from the user) according to the following criteria: Unit Price First 100 units no charge Next 100 units Rs 5 per unit After 200 units Rs 10 per unit Test cases: Input: 350 Output: 2000 Explanation: Cost of first 100 uints = 0 Cost of next 100 units = 5*100 = 500 Cost of remaining 150 units = 10*150 = 1500 Hence, total cost = 0 + 500 + 1500 = 2000	NFC64
FC074	Accept the age, gender ('M', 'F'), and the number of days and display the wages accordingly If the age does not fall in any range then display the following message: "Enter appropriate age" Age: Gender Wage/day >=18 and <30 M 700 F 750 >=30 and <=40 M 800 F 850 Test cases: Input: 25 F 20 Output: 15000 Explanation: Age 25 lies in the bracket 18 <= 25< 30. And the gender is female, hence the rate of work of Rs. 750 / day. So total wage is 750 * 20 = Rs. 15000	NFC65
FC075	Accept the number of days from the user and calculate the charge for the library according to the following: First five days: Rs 2/day. Next 5 days: Rs 3/day. Next 5 days: Rs 4/day After 15 days: Rs 5/day Test cases: Input: 15 Output: 45 Explanation: Charge for the first 2 days = 5*2 = 10 Charge for the next 5 days = 5*3 = 15 Charge for the last 5 days = 5*4 = 20 Total charge = 10+15+20 = 45	NFC66
FC077	Input four sides of a quadrilateral ABCD in the order AB, BC, CD, DA and an internal angle I and write a program to categorize the shape of a quadrilateral as either a square, rhombus, rectangle, parallelogram, or irregular quadrilateral. Test cases: Input: 10 8 10 8 72 Output: Parallelogram	NFC67

	Input: 5 5 5 5 90 Output: Square Input: 10 10 8 8 90 Output: Irregular quadrilateral	
FC078	Write a program to input two numbers and sum them. However, if the sum is between 15 to 20 it will return 20. Test cases: Input: 15 23 Output: 38 Input: 11 7 Output: 20	NFC68
FC079	A certain steel is graded according to the following conditions: (i) Rockwell-hardness > 50 (ii) Carbon content > 0.7 (iii) Tensile strength > 5600 kg/cm2 The steel is graded as follows: a. Grade 10, if all the conditions are satisfied b. Grade 9, if conditions (i) and (ii) are satisfied c. Grade 8, if conditions (ii) and (iii) are satisfied d. Grade 7, if conditions (i) and (iii) are satisfied e. Grade 0, otherwise Take three inputs from the user in the order of Rockwell-hardness, Carbon content, Tensile strength and output the grade of the steel. Test cases: Input: 54 0.2 8000 Output: 8	NFC69
FC080	Input an year from the user and output whether a given year is a leap year. (Hint. A year is said to be a leap year if it is either divisible by 4 but not by 100 or divisible by 400.) Test cases: Input: 1900 Output: No Input: 2000 Output: Yes Input: 2024 Output: Yes Input: 2003 Output: No	NFC70
FC081	In the above question take the first condition as divisibility of year by 100 and write a program. Do the dry run for the same inputs.	NFC71

FC082	In the above question take the first condition as divisibility of year by 400 and write a program. Do the dry run for the same inputs.	NFC72
FC083	Input three integers representing the angles of a triangle in degrees to determine whether they form a valid set of angles of a triangle. If it is not a valid set, then generate a message and terminate the process. If it is a valid set, then the process determines whether it is equiangular (all three angles are the same). It also determines if the triangle is right-angled (has one angle with 90 degrees), obtuse-angled (one angle above 90), or acute-angled (all three angles are below 90 degrees). Finally, it shows the conclusion about the triangle. Test cases: Input: 50 90 40 Output: Valid triangle Scalene triangle Right triangle Input: 80 20 80 Output: Valid triangle Isosceles triangle Acute triangle	NFC74
FC084	Input the lengths of the three sides of a triangle to validate whether they can be the sides of a triangle and then classify the triangle as equilateral (all three sides are equal), scalene (all three sides are different), or isosceles (exactly two sides are equal), and then to see whether it is a right-angled triangle (the sum of the squares of two sides is equal to the square of the third side.) (Hint: a triangle is possible to construct if sum of any two sides of the triangle is greater than the third side). Test cases: Input: 6 9 4 Output: Valid triangle Scalene triangle Not a right triangle Input: 5 12 13 Output: Valid triangle Scalene triangle Right triangle	NFC75
FC085	Write a program to check if the given number is divisible by 5, 11, both or none. If it is divisible by 5 then print 5 If it is divisible by 11 then print 11 If it is divisible by 5 and 11 then print “Both”	NFC76

	If it is not divisible by 5 and 11 then print “None” Test cases: Input: 55 Output: Both Input: 15 Output: 5	
FC086	Input 3 numbers from the user and output the second max of 3 numbers. Test cases: Input: 5 4 6 Output: 5	NFC77
FC087	Input 4 numbers from the user and output the second max of 4 numbers. Test cases: Input: 5 4 6 7 Output: 6	NFC78
FC088	Input 4 numbers from the user and output the third max of 4 numbers. Test cases: Input: 5 4 6 7 Output: 5	NFC79
FC089	Input 5 numbers and output the maximum occurring number out of the given 5 numbers. Test cases: Input: 3 4 3 5 1 Output: 3	NFC80
FC090	Input a positive number n and write a program to find the sum of the first n natural numbers. Test cases: Input: 6 Output: 21	NFC81
FC092	Write a program to show how consecutive even numbers starting from 2 are summed up until the sum just exceeds 1000 and then print the sum and the number of even numbers added.	NFC96

FC093	Write a program to print the numbers below 100 that are divisible by 7.	NFC84
FC095	Write a program to show how to find all even natural numbers that are divisible by 7 in a given range. (Input lower and upper limit of the range from the user)	NFC86
FC096	Write a program to find the sum of the squares of the first 9 natural numbers that are divisible by 3.	NFC87
FC097	Write a program to calculate the sum of the following series where n is input. 1 + 1/2 + 1/3 + 1/4 + 1/5 +……1/n	NFC104
FC098	Write a program to show how to find the sum of all the numbers that are divisible by P but not divisible by Q within a given range. (Input lower limit, upper limit, P, and Q from the user)	NFC88
	Write a program to print the even numbers below 100.	
FC099	Write a program to show how to obtain the HCF and LCM of two numbers. (input two numbers from the user) Test cases: Input: 12 15 Output: 3 60	NFC101
FC100	Write a program to show how the sum of the digits of a given number can be obtained. (Input the number from the user) Test cases: Input: 456 Output: 15 Explanation: 4+5+6 = 15	NFC95
FC101	You need to write a program that takes a whole number from the user and shows the number in reverse order. For example, if the user enters the number 123, the program should display 321 as the result.	NFC97
FC102	Write a program to show how the factors of a given number can be obtained. A factor is a number that can divide another number evenly without leaving a remainder. test case1: Input: Enter a number: 12 Output: Factors of 12: 1, 2, 3, 4, 6, 12 test case2:	NFC98

	Input: Enter a number: 25 Output: Factors of 25: 1, 5, 25	
FC103	Can you write a program that asks the user to enter a number and then determines if that number is a special type of number called a 'perfect number'? A perfect number is a number where the sum of all its factors (excluding the number itself) is equal to the number itself. Test Case 1: input: Enter a number: 6 output: 6 is a perfect number. Explanation: The program takes the number 6 as input. It then calculates the factors of 6, which are 1, 2, and 3. The sum of these factors (1 + 2 + 3) is equal to 6, so 6 is a perfect number. test case : 2 Input: Enter a number: 12 Output: 12 is not a perfect number. Explanation: The program takes the number 12 as input. It calculates the factors of 12, which are 1, 2, 3, 4, and 6. The sum of these factors (1 + 2 + 3 + 4 + 6) is equal to 16, which is not equal to 12. Therefore, 12 is not a perfect number.	NFC99
FC104	Can you tell if a number is a special type of number called a 'prime number'? A prime number is a number that is only divisible by 1 and itself, and it doesn't have any other factors. for example, the number 7 is a prime number because it can only be divided by 1 and 7 without leaving a remainder. However, the number 12 is not a prime number because it has other factors, such as 2, 3, 4, and 6, in addition to 1 and 12. Can you figure out if a given number is prime or not?	NFC125
FC105	Write a program for obtaining the sum of a given number of terms (n) for a given value of X in the following mathematical series: (Input X and N from the user) i) X+(X^2)/2+(X^3)/3+(X^4)/4 ....upto n terms ii) X-(X^3)/3+(X^5)/5-(X^7)/7+(X^9)/9-.... upto n terms iii) X-(X^3)/3!+(X^5)/5!-(X^7)/7!+ .... upto n terms --> if user entered X = 2 and N= 6 then first series will become -> 2+(2^2)/2+(2^3)/3+(2^4)/4+(2^5)/5+(2^6)/6 then output will be 27.73 --> for same X and N , the second series will become -> 2-(2^3)/3+(2^5)/5-(2^7)/7+(2^9)/9-(2^11)/11 then output will be -141.84 --> for same X and N , the third series will become -> 2-(2^3)/3!+(2^5)/5!-(2^7)/7!+(2^9)/9!-(2^11)/11! then output will be 0.9092	NFC106
FC106	Write a program to find out the sum of first N terms of the following series 5+55+555+5555+.... up to N terms. if N=6 then this series becomes 5+55+555+5555+55555+555555 = 617,280(output) if N=3 then this series becomes 5+55+555 =615(output)	NFC105
FC108	Write a program to show how to find all the perfect numbers under 10,000. (already you know what is perfect number)	NFC100
FC109	Write a program to find the sum of following series: 1 + 2 + 6 + 24 + 120 . . . . . N terms if N= 6 then series becomes 1+2+6+24+120+720 , then output will be some of this series -> 873	NFC108
FC110	Can you find all the three-digit numbers that have a special property? The property is that the sum of the factorials of its individual digits is equal to the number itself. For example, the number 145 has this property because 1! + 4! + 5! = 1 + 24 + 120 = 145. Can you write a program to determine all three-digit numbers that satisfy this property?	NFC109
FC111	Create a pyramid of numbers consisting of a given number of lines. For example, if the given number is 5, then we should see the following: 1 1 2 1 1 2 3 2 1	NFC121

	1 2 3 4 3 2 1 1 2 3 4 5 4 3 2 1	
FC112	Write a program to print the following patterns with flexible dimensions as supplied by the user: Note: Use nested loops and not string multiplication to print these patterns. N = 5 * * * * * * * * * * * * * * *	NFC113
FC112	Write a program to print the following patterns with flexible dimensions as supplied by the user: Note: Use nested loops and not string multiplication to print these patterns. N = 5 * * * * * * * * * * * * * * *	NFC114
FC112	Write a program to print the following patterns with flexible dimensions as supplied by the user: Note: Use nested loops and not string multiplication to print these patterns. N = 4 * * * * * * * * * * * * * * * *	NFC115
FC112	Write a program to print the following patterns with flexible dimensions as supplied by the user: Note: Use nested loops and not string multiplication to print these patterns. N = 4 *	NFC116

FC113	Can you find the Highest Common Factor (HCF) of a given set of numbers? The HCF is the largest number that divides all the given numbers without leaving a remainder. To do this, we'll ask the user to enter a value 'n' which represents the number of input numbers. Then, the user will input 'n' numbers. We'll calculate the HCF of these numbers. Can you write a program to determine the HCF of 'n' given numbers? Test Case1: Input: Enter the value of n: 4 Enter number 1: 12 Enter number 2: 18 Enter number 3: 24 Enter number 4: 30 Output: The HCF of the given numbers is: 6 Explanation: In this test case, the user inputs four numbers: 12, 18, 24, and 30. The program then calculates the HCF of these numbers, which is found to be 6. This means that 6 is the largest number that can divide all the given numbers (12, 18, 24, and 30) without leaving a remainder. Test Case2: Input: Enter the value of n: 3 Enter number 1: 16 Enter number 2: 28 Enter number 3: 40 Output: The HCF of the given numbers is: 4 Explanation: In this test case, the user inputs three numbers: 16, 28, and 40. The program then calculates the HCF of these numbers, which is found to be 4. This means that 4 is the largest number that can divide all the given numbers (16, 28, and 40) without leaving a remainder.	NFC102
FC114	Find the maximum and minimum values among a given set of numbers? The maximum value is the largest number, and the minimum value is the smallest number in the set. To do this, we'll ask the user to enter a value 'n', which represents the number of input numbers. Then, the user will input 'n' numbers. We'll compare these numbers and determine the maximum and minimum values. Can you write a program to find the maximum and minimum values among 'n' given numbers? Test Case: Input: Enter the value of n: 5 Enter number 1: 10 Enter number 2: 5 Enter number 3: 8 Enter number 4: 3 Enter number 5: 12 Output: Maximum value: 12 Minimum value: 3 Explanation: In this test case, the user inputs five numbers: 10, 5, 8, 3, and 12. The program then calculates the maximum and minimum values among these numbers. The maximum value is found to be 12, which is the largest number in the set. The minimum value is found to be 3, which is the smallest number in the set.	NFC122
FC115	Write a program to find the second max of given N numbers. if N=4 and entered 4 numbers are 3,2,1,4 then output should be 3 as this is the second maximum number among those 4 numbers.	NFC123
FC116	Write a program to find the third max of given N numbers. if N=5 and entered 5 numbers are 2,1,4,100,64 then output should be 4 as this is the third maximum number among those 5 numbers.	NFC124

FC117	Write a program to input a number, N, and print first N prime numbers. Test cases: Input: 4 Output: 2 3 5 7 Explanation: The first 4 prime numbers are 2,3,5,7	NFC126
FC118	Write a program to find the sum of all prime numbers between 1 to n. (n input from the user) Test cases: Input: 20 Output: 77 Explanation: All prime numbers between 1 to 20 are 2,3,5,7,11,13,17,19. Hence their sum is 77	NFC127
FC119	Write a program to print only the prime factors of a given number 'N'? Prime factors are the prime numbers that divide a given number without leaving a remainder. Test Case: Input: Enter a number: 84 Output: Prime factors of 84: 2, 3, 7 Explanation: In this test case, the number given is 84. The program calculates and displays the prime factors of 84, which are 2, 3, and 7. These prime numbers can divide 84 without leaving a remainder.	NFC128
FC120	Write a program that prints the first 'N' Fibonacci numbers? Fibonacci numbers are a series of numbers where each number is the sum of the two preceding numbers. We start with the numbers 0 and 1, and then calculate and print each subsequent Fibonacci number by adding the previous two numbers. For example, the third Fibonacci number is obtained by adding the first two numbers: 0 + 1 = 1. the fourth fibonacci number can be obtained by adding the previous two numbers... if N=8 then series will be (0,1,1,2,3,5,8,13) write a program to print the first 'N' Fibonacci numbers?	NFC129
FC124	Given two integer numbers M and N, write a program to print the integers from M to N. if M=5 and N=12 then output should be 5,6,7,8,9,10,11,12	NFC82
FC125	Write a program to print a solid square pattern of N rows and N columns using the asterisk character (*), where integer N is given as an input. if N = 5 *	NFC110
FC129	Given an integer N, write a program which reads N inputs and prints them. if user entered N = 4 then we need to take input for 4 times from the user and we should print the 4 inputs entered by user. if user entered 4 numbers are 32,5,5,78 the output should be 32,5,5,78	NFC92
FC130	Given an integer N, write a program which reads N inputs and prints the sum of the given input integers. if user entered N = 4 then we need to take input for 4 times from the user and we should print the sum of 4 inputs entered by user. if user entered 4 numbers are 32,5,5,78 the output should be 120 as it is sum of 32+5+5+78	NFC93

FC131	Given an integer,N. Write a program to print integers from N to 1. if N = 8 then output should be 8,7,6,5,4,3,2,1	NFC83
FC133	Write a program which reads N inputs and prints the product of the given input integers. if N = 4 and user entered 4 numbers are 4,8,2,3 then output should be 192 as it is product of (4*8*2*3)	NFC94
FC134	Write a program to print the following patterns with flexible dimensions as supplied by the user: Note: Use nested loops and not string multiplication to print these patterns. N = 5 *	NFC117
FC135	Write a program to print the factorial of N. Factorial is the product of all positive integers less than or equal to N. if N = 5 output should be 120 as the product of (5*4*3*2*1) is 120. if N = 3 output should be 6 as the product of (3*2*1) is 6.	NFC85
FC136	Write a program to print the sum of the Kth power of the first N natural numbers. if N = 4 and k=2 then the output should be 30 , because (1^2+2^2+3^2+4^2=30) if N = 5 and k=3 then the output should be 225 , because (1^3+2^3+3^3+4^3+5^3 = 225)	NFC89
FC137	Given two integers M and N, write a program to print a solid rectangle pattern of M rows and N columns using the asterisk character (*). if M = 3 and N = 4 then pattern should be	NFC111

	* * * * * * * * * * * * if M = 3 and N=2 * * * * * *	
FC138	Given an integer number (N) as input. Write a program to print the right-angled triangular pattern of N lines using an asterisk(*) character. if N = 6 *	NFC112
FC151	Given two integers M, N. Write a program to print the product of numbers in the range M and N (inclusive of M and N). if M = 2 and N = 7 then output should be 5040 as the product of numbers (2*3*4*5*6*7=5040) if M = 5 and N = 9 then output should be 15120 as the product of numbers (5*6*7*8*9 = 15120)	NFC90
FC152	Write a program to print the multiplication table of the given number (N) up to ten multiples in the format "N x i = M". if N = 5 then we should have exact output format 5 x 1 = 5 5 x 2 = 10 5 x 3 = 15 5 x 4 = 20 5 x 5 = 25 5 x 6 = 30 5 x 7 = 35 5 x 8 = 40 5 x 9 = 45 5 x 10 = 50	NFC107
FC155	Given an integer number N as input. Write a program to print the hollow square pattern of N lines as shown below. Note: There is a space after each asterisk (*) character. if N = 5 * * * * * * * * * * * * * * * *	NFC118
FC155	Write a program to print the following patterns with flexible dimensions as supplied by the user: Note: Use nested loops and not string multiplication to print these patterns. if N = 5 * * * * * * * * * * * *	NFC119

FC157	Write a program that calculates the number of perfect squares in a given range from 'A' to 'B'? The program should take two numbers, 'A' and 'B', where 'A' is the lower bound and 'B' is the upper bound of the range. The program will count the number of perfect squares within this range, including both 'A' and 'B'. A perfect square is a number that can be expressed as the square of an integer. For example, 4, 9, and 16 are perfect squares because they can be expressed as 2^2, 3^2, and 4^2 respectively. so write a program to count the number of perfect squares in the range from 'A' to 'B'? Test Case: Input: A = 10 B = 30 Output: Number of perfect squares in the range 10 to 30 : 2 Explanation: In this test case, the range given is from 10 to 30. The program calculates the number of perfect squares within this range, including both 10 and 30. The perfect squares in this range are 16 and 25	NFC91
FC177	Write a program to check whether a number is Armstrong or not. (Armstrong number is a number that is equal to the sum of cubes of its digits, for example : 153 = 1^3 + 5^3 + 3^3.)	NFC103
FC241	Make a flowchart to keep asking for a number until you enter a negative number. In the end, print the sum of all entered numbers. Test cases: Input: 5 17 4 -1 Output: 25 Explanation: The input was taken until a negative number was given as an input. Once the input is a negative number, we sum the numbers entered. Hence the output is 5+17+4+(-1) = 25	NFC132
FC243	Make a flowchart for this pattern. ******* * * ******* * * *******	NFC120
FC265	Write a program to convert binary to decimal. if given binary is 1000 then output should be 8 which is decimal of binary 1000	NFC130
FC266	Write a program to convert decimal to binary. If the given decimal is 11, then the output should be 1011 which is the binary for 11	NFC131
FC267	Take an input n and repeatedly find the sum of the digits of a number till you get a single digit. Example: 678 -> 6+7+8 = 21 -> 2+1 = 3	NFC133

FC268	Find the sum of an arithmetic prograssion using a loop. Input first term a, common difference d, and number of terms n from the user. Test cases: Input: 3 4 5 Output: 55 Explanation: The given series is 3, 7, 11, 15, 19. Hence the sum of the series is 55	NFC134
FC269	Find the sum of a geometric prograssion using a loop. Input first term a, common ratio r, and number of terms n from the user. Test cases: Input: 1 2 5 Output: 31 Explanation: The given series is 1,2, 4, 8, 16. Hence the sum of the series is 31	NFC135
FC270	Write a program to check if a given integer is jumbled or not. A number is said to be Jumbled if for every digit, its neighbours digit differs by max 1. Ex: 6765 -> True 357 -> False	NFC136
FC271	A pronic number is a number that is the product of two consecutive integers, that is, a number of the form n (n + 1). Take an input n and check if its pronic or not	NFC137
FC272	Zeckendorf's theorem states that every positive integer can be written uniquely as a sum of distinct non-neighbouring Fibonacci numbers. Two Fibonacci numbers are neighbours if they come one after other in Fibonacci Sequence (0, 1, 1, 2, 3, 5, ..). For example, 3 and 5 are neighbours, but 2 and 5 are not. Given a number, find a representation of number as sum of non-consecutive Fibonacci numbers.	NFC138
FC273	Euler's Totient function Φ (n) for an input n is the count of numbers in {1, 2, 3, …, n-1} that are relatively prime to n, i.e., the numbers whose GCD (Greatest Common Divisor) with n is 1. Given an input n, find the totient function of n Example: for n = 5, numbers 1,2,3,4 are relatively prime to 5. So Φ(5) = 4	NFC139
FC274	An integer number in base 10 which is divisible by the sum of its digits is said to be a Harshad Number. Below are the first few Harshad Numbers represented in base 10: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 18, 20…… Given a number in base 10, our task is to check if it is a Harshad Number or not.	NFC140
FC275	A number is said to be twisted prime if it is a prime number and reverse of the number is also a prime number. Given a number n, check if its twisted prime or not. Ex: 79 and 97 are both prime => 79 is a twisted prime	NFC141
FC276	Floyd's triangle is a triangle with first natural numbers. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 Given an input n, print n rows of Floyd's triangle	NFC142
FC190	Write a program to print only odd numbers from the given array using a while loop . L = {23, 45, 32, 25, 46,33, 71, 90}	NFC143
FC198	Write a program to create an array of natural numbers till 20 and print it.	NFC144
FC199	Write a program to input 5 names from the user and print them.	NFC145
FC200	Given an array and its size, print the array in reverse order. (l=[5,4,9,2,1,0])	NFC146
