#module\_release practice\_day\_1

1.এখন পর্যন্ত ভি ডি ওগুলাতে যতগুলা ক োড দে খান ো হয়ে ছে সবগুল ো ক োডব্লকস এ টাইপ করে রান করে দে খ।

প্রতি ক্ষে ত্রে মি লি য়ে দে খ আউটপুট মি লে কি না।

2. নি চে র ক োডে র আউটপুট কি হবে বলে ত োমার মনে হয়?

#include <stdio.h>

int main ()

{

printf ("Testing...");

printf ("....1");

printf ("...2");

printf ("..3");

printf ("\n");

return 0;

}

ক োডটা রান করে দে খ ত োমার উত্তর ঠিক আছে কি না।

3. নি চে র ক োডটাতে অনে কগুলা সি নট্যাক্স এরর আছে । ক োডটাকে ক োডব্লকস এ টাইপ করে সবগুলা এরর ঠিক

কর, যাতে এটি রান করে এবং সঠিক আউটপুট দে য়।

#include <stdio.h>

int main ()

(

INT sum;

/\* COMPUTE RESULT

sum = 25 + 37 - 19

/\* DISPLAY RESULTS //

printf ("The answer is %d\n" sum);

return 0;

}

4. এমন একটা প্র োগ্রাম লি খ যে টা নি চে র মত আউটপুট দি বে ।

Hello

nice

to

meet

you

5. নি চে র ক োনগুলা সঠিক ভে রি য়ে বল নাম হতে পারবে ।

Int Calloc floating ReInitialize

char Xx \_1312 \_

6\_05 alpha\_beta\_routine z A$

ক োড লি খে ভে রি য়ে বল ডি ক্লে য়ার করে দে খ ত োমার উত্তর ঠিক আছে কি না।

6. নি চে র ক োডটা কি করে বলে ত োমার মনে হয়?

#include <stdio.h>

int main ()

{

int x, y;

scanf("%d %d", &x, &y);

printf("%d\n", x/y);

return 0;

}

ক োডটাতে 5 0 ইনপুট দি য়ে দে খ ত ো কি হয়?

7. একটা প্র োগ্রাম লি খ যে টা ত োমার উচ্চতা ইনপুট নি বে ইঞ্চি তে , তারপর সে টাকে ফুট আর ইঞ্চি

ফরম্যাট এ আউটপুট দি বে ।

Example:

Enter height is inches: 65

Your height is 5 feet 5 inches

8. একটা প্র োগ্রাম লি খ যে টা একটা আয়তক্ষে ত্রে র দৈ র্ঘ্য আর প্রস্থ ইনপুট নি বে আর তারপর টার

ক্ষে ত্রফল আর পরি সীমা বে র করে দি বে ।

Example:

Enter height of rectangle: 10

Enter width of rectangle: 30

Area is 300

Perimeter is 80

Module 3.5 Problemset

1. Write a C program to print your name, date of birth. and mobile number.

*Expected Output*:

Name  : Alexandra Abramov

DOB    : July 14, 1975

Mobile : 99-9999999999

1. Write a C program that accepts two integers from the user and calculate the product of the two integers.

*Expected Input/Output*:

Input the first integer: 25

Input the second integer: 15

Expected Output:

Product of the above two integers = 375

1. Write a C program to input two numbers and perform all arithmetic operations to find sum, difference, product, quotient and modulus of two given numbers.

**Example**

**Input**

First number: 10

Second number: 5

**Output**

Sum = 15

Difference = 5

Product = 50

Quotient = 2

Modulus = 0

1. Write a C program to input principle, time and rate (P, T, R) from the user and find Simple Interest and principal plus interest.

**Example**

**Input**

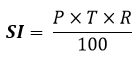
Enter principle: 1200

Enter time: 2

Enter rate: 5.4

**Output**

Simple Interest = 129.600006

Principal + Interest = 1329.6

           Hint: Formula to find simple interest:

1. Write a C program that takes a positive float number and outputs its integer part and real part.

*Expected Input/Output*:

                Enter Number: 3.578

                Integer part: 3

                Real part: .578

Hint: To find the real part, you can subtract the integer part from the number.

1. Write a C program that accepts an employee's total worked hours of a month and the amount he received per hour. Print salary (with two decimal places) of a particular month.

Test Data :

Input the working hrs: 8

Salary amount/hr: 15000

Expected Output:

Salary = 120000.00

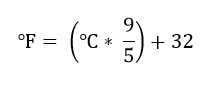
1. Write a C program to input temperature in Centigrade and convert to Fahrenheit. **Example**

**Input**

Enter temperature in Celsius = 100

**Output**

Temperature in Fahrenheit = 212.0 F

        Hint: Temperature conversion formula from degree Celsius to Fahrenheit is given by -

1. Write a C program to input temperature in degree Fahrenheit and convert it to degree Centigrade.

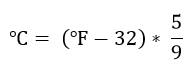
**Example**

**Input**

Temperature in fahrenheit = 205

**Output**

Temperature in celsius = 96.11 C

Hint: Formula to convert from degree Fahrenheit to degree Celsius is given by 

1. Write a C program to convert a given integer (in days) to years, months and days, assuming that all months have 30 days and all years have 365 days.

Test Data :

Input no. of days: 2535

Expected Output:

6 Year(s)

11 Month(s)

15 Day(s)

        Hint: It is similar to the Feet-Inches problem. First find the number of years and the remaining number of days. Then convert the remaining number of days into months and days.

1. Write a C program that accepts two item’s weight (floating points' values ) and number of purchase (floating points' values) and calculate the average value of the items.

*Expected Input/Output*:

Weight - Item1: 15

No. of item1: 5

Weight - Item2: 25

No. of item2: 4

Expected Output:

Average Value = 19.444444

Hint: Find the total weight and total number of objects and then use it to find the average.

Module 5.5: Practice

1. এখন পর্যন্ত ভিডিওগুলাতে যতগুলা কোড দেখানো হয়েছে সবগুলো কোডব্লকস এ টাইপ করে রান করে দেখ। প্রতিক্ষেত্রে মিলিয়ে দেখ আউটপুট মিলে কিনা।

1. A = 5, B = 6, C = 10. এই মান গুলোর জন্য নিচের কোনগুলো সত্য আর কোনগুলো মিথ্যা যাচাই কর।
2. A < 5
3. A+B == 11
4. (A\*C)%5 == 0
5. A>=B
6. !(A>B)
7. (A<B) && (B<C)
8. (A<B) || (B<C)
9. (A>=B) || (B<C)
10. (A>B) && (B<C)
11. !(A%5==0 && B%5==0)
12. (A<B && B%4==0) || (C%5==0)
13. একটি প্রোগ্রাম লিখ যেটি কোন সংখ্যা জোড় না বিজোড় বলতে পারে।
14. আমরা একটা প্রোগ্রাম লিখেছিলাম যেটা a op b আকারের মান বের করতে পারে। ওটাকে এমনভাবে আপডেট কর যেন ওটা % অপারেটর এর জন্যও কাজ করে আর 0 দিয়ে ভাগ বা % করতে গেলে “Cannot divide by 0” print দেয়।

Example:

Input:

        5 \* 15

Output:

        75

Input:

        3%2

Output:

        1

Input:

        5/0

Output:

        Cannot divide by 0.

1. একটি প্রোগ্রাম লিখ যা ১oo তে মার্ক ইনপুট নিয়ে গ্রেড আউটপুট দিতে পারে।  এখানে গ্রেড এর টেবিল দেওয়া হল।

        80-100: A+

        70-79: A

        60-69: B

        50-59: C

        40-49: D

        0-40: F

1. একটি প্রোগ্রাম লিখ যা ধনাত্মক সংখ্যা ইনপুট দিলে ১, শূন্য ইনপুট দিলে ০, আর নাইলে -১ প্রিন্ট করে।
2. দুটি সংখ্যা এর মধ্যে বড়টি বের করার জন্য প্রোগ্রাম লিখ।
3. উপরের প্রোগ্রামটি ternary operator দিয়ে লিখ।

1. আমরা for লুপ ব্যাবহার করে ১ থেকে ১০ এর যোগফল বের করেছি। নিচের ধারা গুলোর যোগফল বের করার প্রোগ্রাম লিখ।
2. 1+2+3+.....100
3. 1+3+5+...+29
4. 50 + 49 + 48 + 47 + …… ( প্রথম ২০টি পদ)
5. 2 + 5 + 8 + 11 + 14 + …..   (প্রথম ১০টি পদ)
6. 100 + 97 + 94 + 91 + ….  (0 এর চেয়ে বড় পর্যন্ত)
7. নিচের প্রতিটি প্যাটার্ন আউটপুট দিবে এমন প্রোগ্রাম লিখ।  (Use for loops)
8. 1

 22

 333

 4444

1. \*

\*\*

\*\*\*

\*\*\*\*

1. 1

2 3

4 5 6

7 8 9 10

Module 6.5 Problem set

1. Write a C program that prints all even numbers between 1 and n (inclusive), where n is taken as input.
2. Write a C program that accepts two integers and prints true if either one is 5 or their sum or difference is 5.
3. Write a C program to check whether a given non-negative number is a multiple of 3 or 7, but not both.  For example: inputs 7, 3, 6, 14 should output yes. Inputting 21, 42 should output no.
4. Write a C program that reads an integer between 1 and 12 and print the month of the year in English. Use switch case.

Input :

Input a number between 1 to 12 to get the month name: 8

Expected Output:

August

1. Write a C program that will first read an integer n, then read n integers. From those, it will find the sum of even integers.

Example:

Enter n: 5  
Input 5 integers: 2 3 5 6 7

Sum of even integers = 8

1. Write a C program to read temperature in centigrade and display a suitable message according to temperature state below :

Temp < 0 then Freezing weather

Temp 0-10 then Very Cold weather

Temp 10-20 then Cold weather

Temp 20-30 then Normal in Temp

Temp 30-40 then Its Hot

Temp >=40 then Its Very Hot

Test Data :

42

*Expected Output* :

Its very hot.

1. Write a C program to check whether a triangle is Equilateral, Isosceles or Scalene.

Test Data :

50 50 60

*Expected Output* :

This is an isosceles triangle.

1. Write a C program to check whether an alphabet is a vowel or consonant.
2. Fizzbuzz is a very well known problem. Given a positive integer N, you need to print n lines.

For multiples of **3**, you should print Fizz.

For the multiples of **5**, you should print Buzz.

For numbers which are multiple of **3** and **5** both, print “FizzBuzz”.

        In other cases, print the current line number.

**Example**

Input: 5

Output:

1

2

Fizz

4

Buzz

1. Write a program in C to display the cube of the number upto given an integer.

Test Data :

Input number of terms : 5

*Expected Output* :

Number is : 1 and cube of the 1 is :1

Number is : 2 and cube of the 2 is :8

Number is : 3 and cube of the 3 is :27

Number is : 4 and cube of the 4 is :64

Number is : 5 and cube of the 5 is :125

1. Write a program in C that takes two inputs x and y and prints all numbers that are multiples of x but divisors of y.  If there are none, print no such integers.

Test Data :

5 20

*Expected Output* :

5 10 20

Test Data :

6 20

*Expected Output* :

No such integers

1. Write a C program to find all roots of a quadratic equation (ax^2 + bx + c = 0). Mention the number of roots and Then list all of them.

**Example**

**Input**

Input a: 8

Input b: -4

Input c: -2

**Output**

There are two roos.

Root1: 0.80

Root2: -0.30

1. Write a C program to input sides of a triangle and check whether triangle is valid or not using if else.

**Example**

**Input**

Input first side: 7

Input second side: 10

Input third side: 5

**Output**

Triangle is valid

1. Remember the program we wrote to calculate the GPA of a student. Update it so that it can calculate the GPA of multiple terms and finally output the overall CGPA. For simplicity assume that CGPA is the average of all terms GPA.

**Example**

**Input**

Enter number of terms: 2

Term 1:

Enter number of Subjects: 3

Enter Marks Subject 1: 80

Grade = A+, Points = 5.00

Enter Marks Subject 2: 70

Grade = A, Points = 4.00

Enter Marks Subject 3: 65

Grade = B, Points = 3.00

Term GPA: 4.00

Term 2:

Enter number of Subjects: 3

Enter Marks Subject 1: 50

Grade = C, Points = 2.00

Enter Marks Subject 2: 70

Grade = A, Points = 4.00

Enter Marks Subject 3: 65

Grade = B, Points = 3.00

Term GPA: 3.00

Overall CGPA = 3.50

Programming Excercise

1) Write an interactive program that could read a positive integer number and decide

whether the number is a prime number and display the output accordingly.

Modify the program to count all the prime numbers that lie between 100 and 200

2) Given a number, write a program using while loop to reverse the digits of the number.

Output:--

Enter any Number:--

12345

Reverse of Number 12345 is 543

3) The factorial of an integer m is the product of consecutive integers from 1 to m. That is,

Factorial m = m! = m\*(m-1)\*…………1

Output:--

Enter any Number:--

4

Factorial of Number 4 is 24

4) Write a program to compute the sum of the digits of a given number.

Output:

Enter any Number:--

12345

Sum of Number 12345 is 15

5) The numbers in the sequence 1 1 2 3 5 8 13 21 ……………………. are called Fibonacci numbers. Write a program using do ……….. while loop to calculate and print the first m Fibonacci numbers.

Output:--

Enter Length of Series:--

5

Fibonacci Numbers-->

11235

6)  Write a program in C to display the n terms of harmonic series and their sum

1 + 1/2 + 1/3 + 1/4 + 1/5 ... 1/n terms

7) Write a c program to find the perfect numbers within a given number of range

Output :

Input the starting range or number : 1

Input the ending range of number : 50

*Expected Output* :

The Perfect numbers within the given range : 6 28

8) Write a C program to display Pascal's triangle

Output:

Input number of rows: 5

*Expected Output* :

       1

      1   1

    1   2   1

  1   3   3   1

1   4   6   4   1

9) Write a program in C to check whether a number is a palindrome or not

Output :

Input a number: 121

*Expected Output* :

121 is a palindrome number.

10) Write a C program to find HCF (Highest Common Factor) of two numbers.

Output:

Input 1st number for HCF: 24

Input 2nd number for HCF: 28

Expected Output :

HCF of 24 and 28 is : 4

Module 13.5 Problem Set

1. এখন পর্যন্ত ভিডিওগুলাতে যতগুলা কোড দেখানো হয়েছে সবগুলো কোডব্লকস এ টাইপ করে রান করে দেখ। প্রতিক্ষেত্রে মিলিয়ে দেখ আউটপুট মিলে কিনা।

1. Write a C program to read elements in an array and find the sum of array elements.

**Example Input**

Input elements: 10, 20, 30, 40, 50

**Output**

Sum of all elements = 150

1. Write a C program to read elements in an array and find the maximum of array elements. Also find how many times the maximum occurs.

**Example Input**

Input elements: 10, 20, 50, 40, 50, 30, 40

**Output**

Maximum is 50

Maximum occurs 2 times

1. Write a C program to find the second largest element in an array.

**Example**

**Input**

Input array elements: -7 2 3 8 6 6 75 38 3 2

**Output**

Second largest = 38

1. Write a C program to insert element in array at specified position.

**Example**

**Input**

Input array elements: 10, 20, 30, 40, 50

Input element to insert: 25

Input position where to insert: 3

**Output**

Elements of array are: 10, 20, 25, 30, 40, 50

1. Write a C program to find the distinct values and their frequency in an array. Each value should be printed only once. The values in the array are between 0 and 100.

**Example Input**

Input elements: 10, 20, 50, 40, 50, 10, 40

**Output**

There are five distinct values.

10 occurs 2 times.

20 occurs 1 times.

40 occurs 2 times.

50 occurs 2 times.

1. Write a C program to input elements in array and search whether an element exists in array or not

**Example**

**Input**

Input size of array: 10

Input elements in array: 10, 12, 20, 25, 13, 10, 9, 40, 60, 5

**Output**

Element to search is: 25

Element found at index 3

1. Write a C program to find reverse of a given string.

**Example**

**Input**

Hello

**Output**

Reverse string: olleH

1. Write a C program to find total number of vowels and consonants in a string using loop and if else. How to find total number of vowels and consonants in a string using switch case in C programming. Logic to count number of vowels and consonants in a string.

**Example**

**Input**

Input string: I love Philtron.

**Output**

Total Vowels = 5

Total Consonants = 8

1. Find the lexicographically smallest string from a list of strings

**Example**

**Input**

3

banana

apple

apply

applet

app

**Output**

Lexicographically smallest string is app

1. Write a C program to count all occurrences of a character in a string.

**Example**

**Input**

Input string: I love programming. I love Philtron.

Input character to search: o

**Output**

Total occurrences of 'o': 4

**Module 17.5: Practice**

1. এখন পর্যন্ত ভিডিওগুলাতে যতগুলা কোড দেখানো হয়েছে সবগুলো কোডব্লকস এ টাইপ করে রান করে দেখ। প্রতিক্ষেত্রে মিলিয়ে দেখ আউটপুট মিলে কিনা।

1. Write a function to find the area of a rectangle given its length and width.

1. Write a function that will take an array and find its maximum.

1. Write a function which will right rotate an array by k. For example, array a has the values {1, 2, 3, 4, 5}. If we call Rotate(a). Array a will have the values {2, 3, 4, 5, 1}.

1. Write a function which will right rotate an array by k. For example, array a has the values {1, 2, 3, 4, 5}. If we call RotateByK(a, 3). Array a will have the values {4, 5, 1, 2, 3}. You can use the previous function.

1. Suppose, you call Rotate ByK(a, 1000000000). You will find that your program takes a lot of time. How can you optimize your program?

Hint: What happens when you rotate by the array length?

1. Write a function truncate() that takes a string and an integer k, and keeps only the first k characters. For example - if s is “abcd”, truncate(s, 2) will make s = “ab”

1. Declare three pointers a, b, c. a points to an int, b to an double, c to a char. Find out the values of the following expressions?
   1. a+1
   2. a-2
   3. b+3
   4. b-4
   5. c-5
   6. c+6
   7. a-b
2. In the following code, complete the box such that it prints “20 40”.

const int a = 20;

printf(“%d “, a);

|  |
| --- |
| \\\Write code here. |

printf(“%d “, a);

1. Asma wrote the following function to make an integer positive.

void makePositive(int a) {

if (a < 0) {

a = -a;

}

}

Will it work? If not, how can she fix it?

**Ans:**

void makePositive(int a)

{

if (a < 0)

{

a = -a;

}

}

**Module 18.5**

1. Write a function that takes no input and prints the number of times the function has been called. Hint: Use static variables.

  Example: printCall(); printCall(); printCall();  will print

“Called 1 times”

“Called 2 times”

“Called 3 times”

1. Suppose you have a global variable number. Write three functions -
   1. set (int v)   -> updates number to v.
   2. makedouble() -> doubles number.
   3. print() -> prints the current value of number.

  Example:

set(10); //v is now 10

set(5); //v is now 5

print(); //prints 5

makedouble(); //v is now 10

makedouble(); //v is now 20

print(); //prints 20

1. Write a C function that takes an integer and reverses its digits. The function should have the signature void reverse(int\* ).

1. The function sort(int \*a, int \*b) sorts the variables a, b by their value. If a is smaller, the function does nothing, otherwise it swaps them. Implement the function.

1. Use the above function to sort three integers a, b, c by their value. After sorting a should have the smallest value, b should have the second smallest, c the largest value. Hint: It should take three function calls.

1. Write a function that outputs the element wise sum of two equal sized array. It should have the signature void add(int a[], int b[], int sum[]). Use the sum variable for outputting the sum.

Example: a = {1, 2, 3}, b = {2, 3, 4}. Then sum should be {3, 5, 7}

1. Write a function that as input n and outputs an a