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Assignment 6

FRN-006

Q) Ferenhit to Celcius

```c
#include<stdio.h>
void ferenhitToCelcius(float*);

int main(){
    float F;
    printf("Enter temperature Value in ferenhit\n");
    scanf("%f", &F);
    ferenhitToCelcius(&F);
    return 0;
}

void ferenhitToCelcius(float* F){
    // return ((F-32) * 5/9);
    printf("%0.2f Ferenhit = %.2f degree celsius\n",*F, ((*F-32) * 5/9));
    // f-32 ** 5/9
}
```

Q)Area and Perimeter of rectangle and circle

```c
#include<stdio.h>
void findAreaNPerimeterOfRect(int*, int*);
void findAreaNPerimeterOfCircle(float*);

void findAreaNPerimeterOfRect(int* length, int* breadth){
    printf("Area of rectangle is %d\n", * length *  *breadth);
    printf("perimeter of rectangle is %d\n", 2 * (*length+*breadth));
    // return length*breadth;
}

void findAreaNPerimeterOfCircle(float* radius){
    // return 2 * 3.14 * radius;
    printf("Area of circle is %.2f\n", 3.14 *  (*radius) *  (*radius));
    printf("perimeter of circle is %.2f\n", 2 * 3.14 * (*radius));
}

int main(){
    int length, breadth;
    printf("Enter Length and breadth for finding Area of rectangle\n");
    scanf("%d %d", &length, &breadth);
    findAreaNPerimeterOfRect(&length, &breadth);
```

```
    float radius;
    printf("Enter radius value for finding Perimeter of circle\n");
    scanf("%f", &radius);
    findAreaNPerimeterOfCircle(&radius);
    return 0;
}
```

Q)Sum of digits and reverse

```
// find sum of 3 digit num and reverse it
#include<stdio.h>
void findSumOfDigits(int*);
void findReverse(int, int,int,int);

int main(){
    int num;
    printf("Enter a 3 digit number to find sum of digit: \n");
    scanf("%d", &num);
    findSumOfDigits(&num);
    return 0;
}

void findSumOfDigits(int* num){
    int temp = *num;
    int r1 = *num %10; //3
    *num = *num /10; //12
    int r2 = *num %10;
    int r3 = *num /10;
    printf("Sum of %d is %d\n", temp, r1+r2+r3);
    findReverse(r1,r2,r3, *num);
}

void findReverse(int r1, int r2, int r3, int num){
    printf("Reverse num of %d is %d\n", num,
(r1*100)+(r2*10)+r3);
}
```

Q)Find odd even using pointer

```
#include <stdio.h>
void checkEvenOdd(int*);
int main()
{
```

```
    int num;
    printf("Enter Number:\n");
    scanf("%d", &num);
    // checkEvenOdd() ? printf("Even Number\n") : printf("Odd
Number\n");
    checkEvenOdd(&num);
    return 0;
}

void checkEvenOdd(int* num)
{
    *num % 2 ? printf("%d is odd num\n",*num) : printf("%d is
even num\n", *num);
    // return !num%2;2
}
```

Q)Find Salary

```
#include<stdio.h>
// if basic <= 5000 da,ta, hra -> 10%,20,30
// otherwise 15,25,30
void calSalary(float*);
int main(){
    float basic;
    printf("Enter Basic of Salary\n");
    scanf("%f", &basic);
    // printf("Salaray is %.2f\n",calSalary());
    calSalary(&basic);
    printf("End\n");
    return 0;
}

void calSalary(float* basic){
    float salary;
    if(*basic <=5000){
        salary = *basic + (*basic * 10)/100 + (*basic * 20)/100 +
(*basic*30)/100;
    }
    else
        salary = *basic + (*basic * 15)/100 + (*basic * 25)/100 +
(*basic*30)/100;
```

```
    printf("Salary is %.2f\n", salary);
    // return salary;
}
```

Q)Find eligibility for marriage

```
#include <stdio.h>

void checkEligibility(int*, char*);

int main()
{
    int age;
    char gender;
    printf("Enter Age:\n");
    scanf("%d", &age);
    printf("Enter Gender('M'or 'F'):\n");
    fflush(stdin);
    scanf("%c", &gender);
    // checkEligibility(age, gender) ? printf("Eligible For
Marriage\n") : printf("Not Eligible For Marriage\n");
    checkEligibility(&age, &gender);
    return 0;
}

void checkEligibility(int* age,char* gender)
{

    if (*gender == 'M' || *gender=='m')
    {
        *age>=21 ? printf("Gender -> %c\nAge -> %d\nEligible for
marriage", *gender, *age): printf("Gender -> %c\nAge -> %d\nNot
Eligible for marriage", *gender, *age);
        // age>=21 ? return 1 : return 0;
        // if (age >= 21) return 1;
    }
    else if(*gender == 'F' || *gender=='f')
    {
        // if (age >= 18) return 1;
        // age>=18 ? return 1: return 0;
```

```
        *age>=18 ? printf("Gender -> %c\nAge -> %d\nEligible for
marriage", *gender, *age): printf("Gender -> %c\nAge -> %d\n Not
Eligible for marriage", *gender, *age);
    }
    else printf("Invalid Input!!\n");
    // return 0;
}
```

Ques from Assignment - 2

Q)Discount on bill amount

```
#include<stdio.h>

void calNetPrice(int*, int*);

int main(){
    int price, discount;
    printf("Enter price:\n");
    scanf("%d", &price);
    printf("Enter discount percentage Example: 20\n");
    scanf("%d", &discount);
    // printf("Your net price to be paid is:  %d\n",
calNetPrice());
    calNetPrice(&price, &discount);
    printf("End\n");
    return 0;
}

void calNetPrice(int* price, int* discount){
    printf("Your net price to be paid is:  %d\n", *price -
(((*price)*(*discount))/100));
    // return price - (price*discount)/100;
}
```

Q)Find greatest among three numbers

```
#include<stdio.h>
void findGreatest(int*, int*, int*);

int main(){
    printf("Start\n");
    int a,b,c;
```

```
    printf("Enter the value of a: ");
    scanf("%d",&a);
    printf("Enter the value of b: ");
    scanf("%d",&b);
    printf("Enter the value of c: ");
    scanf("%d",&c);
    findGreatest(&a,&b,&c);
    printf("End\n");
    return 0;
}

void findGreatest(int* a, int* b,int* c){
    int greatest;
    if(*a>*b){
        if (*a>*c)
        {
            greatest = *a;
        }
        else
        {
            greatest = *c;
        }

    } else {
        if(*b>*c){
            greatest = *b;
        }
        else {
            greatest = *c;
        }
    }
    printf("%d is Greatest of three.\n", greatest);
}
```

Q)Basic Operations

```
#include <stdio.h>

void showChoices(int*, int* ,char*);

int main()
{
```

```c
    printf("Start\n");
    int num1, num2;
    char operator;
    printf("Enter the value of number 1: ");
    scanf("%d", &num1);
    printf("Enter the value of number 2: ");
    scanf("%d", &num2);

    printf("------Enter your choice :------\n");
    printf("For Addition enter '+'\n");
    printf("For Subtraction enter '-'\n");
    printf("For Multiplication enter '*'\n");
    printf("For Divivsion enter '/'\n");
    printf("For Modulo enter '%'\n");

    fflush(stdin);
    scanf("%c", &operator);
    // printf("Answer is %d\n", showChoices());
    showChoices(&num1, &num2, &operator);
    printf("End\n");

    return 0;
}

void showChoices(int* num1, int* num2, char* operator){

    if (*operator== '+')
    {
        printf("%d %c %d = %d\n", *num1, *operator, *num2, *num1
+ *num2);
        // return num1+num2;
    }
    else if (*operator== '-')
    {
        printf("%d %c %d = %d\n", *num1, *operator, *num2, *num1
- *num2);
        // return num1-num2;
    }
    else if (*operator== '*')
    {
        printf("%d %c %d = %d\n", *num1, *operator, *num2, *num1
* *num2);
```

```
        // return num1*num2;
    }
    else if (*operator== '/')
    {
        printf("%d %c %d = %d\n", *num1, *operator, *num2, *num1
/ *num2);
        // return num1 / num2;
    }
    else if (*operator== '%')
    {
        printf("%d %c %d = %d\n", *num1, *operator, *num2, *num1
% *num2);
        // return num1 % num2;
    }
}
```

Q)Menu driven

```
#include <stdio.h>

void checkEvenOdd(int*);
void calculateSalary(float*);

int main()
{
    int choiceNum;
    printf("----Choices-----\n");
    printf("Enter 1 for calculate Even odd\n");
    printf("Enter 2 for calculate Salary\n");
    scanf("%d", &choiceNum);

    if (choiceNum == 1)
    {
        // checkEvenOdd() ? printf("EVEN number\n") : printf("ODD
number\n");
        int num;
        printf("Enter number to check weather number is even or
odd.\n");
        scanf("%d", &num);
        checkEvenOdd(&num);
    }
    else if (choiceNum == 2)
```

```
    {
        // printf("Salary is %.2f\n",calculateSalary());
        float basic;
        printf("Enter Basic salary\n");
        scanf("%f", &basic);
        calculateSalary(&basic);
    }
    else
    {
        printf("Invalid Choice\n");
    }

    return 0;
}

void checkEvenOdd(int* num)
{

    *num % 2 ? printf("%d is Odd Number\n", *num) : printf("%d is
Even number\n", *num);
    // return !num%2;
}

void calculateSalary(float* basic)
{

    float salary;
    if (*basic <= 5000)
    {
        salary = *basic + (*basic * 10) / 100 + (*basic * 20) /
100 + (*basic * 30) / 100;
    }
    else
        salary = *basic + (*basic * 15) / 100 + (*basic * 25) /
100 + (*basic * 30) / 100;

    printf("Salary is %.2f\n", salary);
    // return salary;
}
```

Q)Student Discount

```c
#include <stdio.h>

void checkIsStudent(char*, float*);

int main()
{
    printf("Start\n");

    float price;
    int discount;
    printf("\nEnter price: ");
    scanf("%f", &price);

    char checkStudent;
    printf("If your are student than press 'Y', else press
'N'\n");
    fflush(stdin);
    scanf("%c", &checkStudent);

    checkIsStudent(&checkStudent, &price);

    printf("End\n");
    return 0;
}

void checkIsStudent(char* checkStudent, float* price)
{
    int discount;
    if (*checkStudent == 'y' || *checkStudent == 'Y')
    {
        discount = *price > 500 ? 20 : 10;
    }
    else if (*checkStudent == 'n' || *checkStudent == 'N')
    {
        discount = *price > 600 ? 15 : 0;
    }
    else
        printf("Invalid choice for student elligibility\n");

    printf("You got %d\% Discount\n", discount);
    printf("You have to pay %.2f rs.\n", *price - (*price *
discount) / 100);
```

```
}
```

Q)Armstrong number in range 1 to n

```
#include <stdio.h>
#include <math.h>
// if 123 is num, and 1^3 + 2^3 + 3^3 = 123, then its armstrong
num
// example 153 = 1 + 125+ 27 is armstrong num
// 1634 = 1^4 + 6^4 + 3^4 + 4^4

void printArmstrongNum(int *);

int main()
{
    printf("Start\n");
    int num;
    printf("Enter a number upto which u want to armstrong
nums:\n");
    scanf("%d", &num);
    printArmstrongNum(&num);
    printf("End\n");
    return 0;
}

void printArmstrongNum(int *num)
{
    for (int i = 1; i <= *num; i++)
    {

        int temp = i, sum = 0, count = 0;
        // find length of number to find exponent
        while (temp > 0)
        {
            count++;
            temp /= 10;
        }

        // temp becomes 0, so ressign for further use
        temp = i;
        while (temp > 0)
        {
```

```
            int rem = temp % 10;
            // cal power of rem
            int power = 1, exponent = count;
            while (exponent--)
            {
                power *= rem;
            }
            sum += power;
            temp /= 10;
        }
        sum == i &&printf("%d ", i);
    }
}
```

Q)Prime number in range 1 to n

```
#include <stdio.h>
void checkPrime(int* num)
{
    for (int j = 1; j <= *num; j++)
    {
        int isPrime;
        for (int i = 2; i * i <= j; i++)
        {
            isPrime = 1;
            if (j % i == 0)
            {
                isPrime = 0;
                break;
            }
        }
        if (isPrime)
        {
            printf("%d ", j);
        }
    }
}

int main()
{
    int num, isPrime = 1, j;
    printf("Enter number upto which u want to check prime of\n");
```

```
    scanf("%d", &num);

    checkPrime(&num);

    return 0;
}
```

Q)Find perfect number in range 1 to n

```
#include <stdio.h>
// number can be called perfect if, sum of its divisors is same
as number itself
// ex: 6 because 1 + 2 + 3 = 6
// 28 beacuse, 1 +2 + 4 + 7 + 14 =28

void checkPerfect(int* num)
{
    for (int j = 1; j <= *num; j++)
    {
        int sum = 0;
        for (int i = 1; i <= j / 2; i++)
        {
            if (j % i == 0)
                sum += i;
        }

        if (j == sum)
        {
            printf("%d ", j);
        }
    }
}

int main()
{
    int num;
    printf("Upto which range u want to check perfect num: ");
    scanf("%d", &num);

    checkPerfect(&num);

    return 0;
```

```
}
```

Q)Check Strong num in range 1 to n

```c
#include <stdio.h>
// num is called strong if its sum of its digit's factorial is
same as num
// ex: 145, 1! + 4!+ 5! = 145

// not optimized as in will open and close function stack frame
multiple time

void checkStrong(int* num)
{
    for (int i = 1; i <= *num; i++)
    {
        int temp = i, rem, sum = 0;
        while (temp > 0)
        {
            rem = temp % 10;

            //--------Factorial Part-------
            // find factorial of rem
            int factorial = 1;
            while (rem > 0)
            {
                factorial *= rem;
                rem--;
            }
            // add factorial of rem to sum
            sum += factorial;

            // continue
            temp /= 10;
        }

        if (sum == i)
            printf("%d ", i);
    }
}

int main()
```

```
{
    int num;
    printf("Enter a number:\n");
    scanf("%d", &num);

    checkStrong(&num);
    return 0;
}
```

Q)Fibonacci In Range

```
#include<stdio.h>
//0 1 1 2 3 5 8 13 21 34 55

void printFibonacciInRange(int*);

int main(){
    printf("Start\n");
    int num;
    printf("Enter a number upto which u want to print fibonacci
series\n");
    scanf("%d", &num);

    printFibonacciInRange(&num);
    printf("End\n");

    return 0;
}

void printFibonacciInRange(int* num) {
    int first =0, second = 1, next = 0;

    while (next<=*num)
    {
        printf("%d ", next);
        first = second;
        second = next;
        next = first + second;
    }
}
```

END