Assignment6(pointer)

Assignmet1

//total salary

```
void salary(float*);

#include<stdio.h>
void main(){
	float basic=3000;
	salary(&basic);
}

//function defination

void salary(float* basic){
	float total;
	float da,ta,hra,a;

	if(*basic<=5000){
		//printf("a is %f",a=10/100);// 10/100 it is internally is a int so int /int gives int therfore it gives o
		//da=basic*(10/100); eihter make any one float or convert into  0.1
		da=(*basic)*0.1;
		printf("\nda is %f",da);
		ta=(*basic)*0.2;
		printf("\nta is %f",ta);
		hra=(*basic)*0.25;
		printf("\nhra is %f",hra);

	}
	else{
```

```
                da=(*basic)*(15/100);
                ta=(*basic)*(20/100);
                hra=(*basic)*(25/100);
        }

        total=(*basic)+da+ta+hra;
        printf("\nThe total salary is %f",total);
}
```

Q2

```
//total salary
void salary(float*);

#include<stdio.h>
void main(){
        float basic=3000;
        salary(&basic);
}

//function defination

void salary(float* basic){
        float total;
        float da,ta,hra,a;

        if(*basic<=5000){
                //printf("a is %f",a=10/100);// 10/100 it is internally is a int so int /int gives int therfore it gives o
                //da=basic*(10/100); eihter make any one float or convert into  0.1
                da=(*basic)*0.1;
                printf("\nda is %f",da);
                ta=(*basic)*0.2;
```

```
                printf("\nta is %f",ta);
                hra=(*basic)*0.25;
                printf("\nhra is %f",hra);

        }
        else{
                da=(*basic)*(15/100);
                ta=(*basic)*(20/100);
                hra=(*basic)*(25/100);
        }

        total=(*basic)+da+ta+hra;
        printf("\nThe total salary is %f",total);
}
```

```
Q3//check even and odd
#include<stdio.h>
void even_odd(int);//declaration

void main(){
        int num;
        printf("Enter the num:");
        scanf("%d",&num);
        even_odd(num);//call


}

//func defination
void even_odd(int num){
        if(num%2==0){
                printf("Even number");
```

```
	}
	else
	{
		printf("odd number");
	}
}
```

Q4

```
#include<stdio.h>
void f(float*);
void main(){
	float C=12.3;
	f(&C);
}

void f(float* c){
	float F;

	F=((*c)*9/5)+32;
	printf(" c is %f and its F is %f",*c,F);
}
```

Q5

```
//accept 3 digit num ,sum the digits and reverse

#include<stdio.h>
void sum_D(int*);
void rev_D(int*);



void main(){
	int num=12;
```

```
	int num1=num;
	sum_D(&num);
//now here in the  memory num is 0 so store it other variable

	rev_D(&num1);

}

//functions defination

void sum_D(int* num){
	int sum=0,rem;
	while((*num)>0){
		rem=(*num)%10;
		(*num)=(*num)/10;
		sum=sum+rem;
	}
	printf("\nThe sum of the digit is %d ",sum);
}

void rev_D(int* num){
	int rev=0,rem;
	//printf("num %d",*num);
	while((*num)>0){
		rem=(*num)%10;
		(*num)=(*num)/10;
		rev=(rev*10)+rem;
		//printf("%d",rev);
	}
		printf("\nThe reverse of the number is %d",rev);
```

```
}
```

Q6

```
//total salary
void salary(float*);

#include<stdio.h>
void main(){
	float basic=3000;
	salary(&basic);
}

//function defination

void salary(float* basic){
	float total;
	float da,ta,hra,a;

	if(*basic<=5000){
		//printf("a is %f",a=10/100);// 10/100 it is internally is a int so int /int gives int therfore it gives o
		//da=basic*(10/100); eihter make any one float or convert into  0.1
		da=(*basic)*0.1;
		printf("\nda is %f",da);
		ta=(*basic)*0.2;
		printf("\nta is %f",ta);
		hra=(*basic)*0.25;
		printf("\nhra is %f",hra);

	}
	else{
		da=(*basic)*(15/100);
```

```
                ta=(*basic)*(20/100);
                hra=(*basic)*(25/100);
        }

        total=(*basic)+da+ta+hra;
        printf("\nThe total salary is %f",total);
}
```

//

Assignment 2

Q1

```
//using scanf()
//Find the price of item when discount is given (specify different discount based on price)
#include<stdio.h>
void discount(float*);
void main(){
        float price;
        printf("Enter the price : ");
        scanf("%f",&price);

        discount(&price);

}
void discount(float* price){
        float dis;

        //take the price from user

        float price_Ini=(*price);
```

```
	if((*price)>=5000 && (*price)<=7000){
		dis=(*price)*0.2;
		(*price)=(*price)-dis;
	}
	else{
		if((*price)>=3000&&(*price)<5000){
			dis=(*price)*0.15;
			(*price)=(*price)-dis;
		}
		else{
			if((*price)<3000){
				dis=(*price)*0.05;
				(*price)=(*price)-dis;
			}
			else{
				printf("invalid inputs");
			}
		}
	}

	printf("the original price is RS %f and after getting dis is RS %f ",price_Ini,(*price));
}
```

Q2

```
//using scanf()
//greatest no. among 3
#include<stdio.h>
void gret(int*,int*,int*);

void main(){

	int num1,num2,num3;
```

```
	printf("Enter num1:");
	scanf("%d",&num1);
	printf("\nEnter num2:");
	scanf("%d",&num2);
	printf("\nEnter num3 :");
	scanf("%d",&num3);

	gret(&num1,&num2,&num3);//call


}

void gret(int* num1,int* num2,int* num3){

	if((*num1)>(*num2)){
		if((*num1)>(*num3)){
			printf("\nnum1 is greatest %d",(*num1));
		}
		else{
			printf("\nnum3 is greatest %d",(*num3));
		}
	}
	else{
		if((*num2)>(*num3)){
				printf("\nnum2 is greatest %d",(*num2));
		}
		else{
			printf("\nnum3 is greatest %d",(*num3));
		}
	}
```

```
}
```

//**********

Q3.1

//using scanf()//Accept two numbers from user and an operator (+,-,/,*,%) based on that perform the desiredoperations.(without using scanf)

```
#include<stdio.h>

void add(int*,int*);

void sub(int*,int*);

void div(int*,int*);

void mul(int*,int*);

void mod(int*,int*);

void choice(char*);


void main(){
	char sign;


	//when we use scanf with %c have to clear the buffer (\n \t enter tab space  etc)

	fflush(stdin);//to clean the buffer

	printf("Enter the sign:");

	scanf("%c",&sign);


	choice(&sign);


}


//func defination


void choice(char* sign){
```

```
if((*sign)=='+'){
                int num1,num2;

printf("Enter num1 :");
scanf("%d",&num1);

printf("Enter num2 :");
scanf("%d",&num2);

                add(&num1,&num2);
}
else{
                if((*sign)=='-'){
                        int num1,num2;

                        printf("Enter num1 :");
                        scanf("%d",&num1);

                        printf("Enter num2 :");
                        scanf("%d",&num2);

                        sub(&num1,&num2);
                }
                else{
                                if ((*sign)=='/'){

                                                int num1,num2;

                                                printf("Enter num1 :");
                                                scanf("%d",&num1);
```

```
                printf("Enter num2 :");
                scanf("%d",&num2);

            div(&num1,&num2);
        }
        else{
                if((*sign)=='*'){
                        int num1,num2;

                        printf("Enter num1 :");
                        scanf("%d",&num1);

                        printf("Enter num2 :");
                        scanf("%d",&num2);
                    mul(&num1,&num2);
                }
                else{
                        if((*sign)=='%'){
                                int num1,num2;

                                printf("Enter num1
:");
        scanf("%d",&num1);

                                printf("Enter num2
:");
        scanf("%d",&num2);

        mod(&num1,&num2);
```

```
                                                                        }
                                                                        else{
                                                                                printf("Invalid
Inputs");
                                                                        }
                                                                }
                                                        }
                                                }
                                        }
}
void add(int* num1,int* num2){
        int res=(*num1)+(*num2);
        printf("Addition is %d",res);
}

void sub(int* num1,int* num2){
        int res=(*num1)-(*num2);
        printf("substraction is %d",res);
}

void div(int* num1,int* num2){
        int res=(*num1)/(*num2);
        printf("division is %d",res);
}

void mul(int* num1,int* num2){
        int res=(*num1)*(*num2);
        printf("multiplication is %d",res);
}

void mod(int* num1,int* num2){
```

```
	int res=(*num1)%(*num2);
	printf("modulation is %d",res);
}
```

```
//using scanf
//Accept two numbers from user and an operator (+,-,/,*,%) based on that perform the desiredoperations.(without scanf)
#include<stdio.h>
void opt(int*);
void add(int*,int*);
void sub(int*,int*);
void mul(int*,int*);
void div(int*,int*);
void mod(int*,int*);


void main(){
	printf("\n 1.add \n 2. sub \n 3.div \n 4.mul \n 5.mod \n\n");

	int choice;
	printf("Enter choice:");
	scanf("%d",&choice);
	opt(&choice);


}

//function defination

void opt(int* choice){

	if((*choice)==1){
```

```
                int num1,num2;
                printf("Enter num1:");
                scanf("%d",&num1);

                printf("Enter num2:");
                scanf("%d",&num2);

                add(&num1,&num2);

}else{
                if((*choice)==2){
                        int num1,num2;
                        printf("Enter num1:");
                        scanf("%d",&num1);

                        printf("Enter num2:");
                        scanf("%d",&num2);

                        sub(&num1,&num2);
                }
                else{
                                if((*choice)==3){

                                        int num1,num2;
                                        printf("Enter num1:");
                                        scanf("%d",&num1);

                                        printf("Enter num2:");
                                        scanf("%d",&num2);
```

```
                    mul(&num1,&num2);

                }
                else{
                        if((*choice)==4){

                            int num1,num2;
                            printf("Enter num1:");
                            scanf("%d",&num1);

                            printf("Enter num2:");
                            scanf("%d",&num2);

                            div(&num1,&num2);


                        }else{
                                if((*choice)==5){


                                    int num1,num2;
                                    printf("Enter
num1:");
        scanf("%d",&num1);

                                    printf("Enter
num2:");
        scanf("%d",&num2);

        mod(&num1,&num2);
```

```
                                                                        }
                                                                        else{
                                                                                printf("\nInvalid
Inputs");
                                                                        }
                                                                }
                                                        }
                                                }
                                        }
                                }
}



void add(int* num1,int* num2){
                        int res=(*num1)+(*num2);
                        printf("Addition is %d",res);
}


void sub(int* num1,int* num2){
                        int res=(*num1)-(*num2);
                        printf("substraction is %d",res);
}


void mul(int* num1,int* num2){
                        int res=(*num1)*(*num2);
                        printf("multiplication is %d",res);
}
```

```
void div(int* num1,int* num2){
                int res=(*num1)/(*num2);
                printf("Division is %d",res);
}


void mod(int* num1,int* num2){
                int res=(*num1)%(*num2);
                printf(" mod is %d",res);
}
```

```
//using scanf
```

//4. Display a menu to the user (like 1.Even Odd 2. Basic salary etc), ask the user to enter his choice,then based on that perform the desired operations

```
#include<stdio.h>

void even_Odd(int*);
void salary(float*);
void menu(int*);

void main(){
        int choice=2;
        printf("1.even odd \n 2.basic_salary");

        printf("\nEnter the choice:");
        scanf("%d",&choice);
        menu(&choice);
}
```

```
//function definations

void menu(int* choice){



	if((*choice)==1){

					int num;
					printf("\nEnter the number to check even odd :");
					scanf("%d",&num);
					even_Odd(&num);

	}else{
		if((*choice)==2){
			float basic_s;
			printf("\nEnter the basic salary:");
			scanf("%f",&basic_s);
			salary(&basic_s);

	}else{
		printf("choice is invalid");
	}
}

}
 void even_Odd(int* num){



			if((*num)%2==0)
```

```
                {
                printf("\neven number");
                }
                else{
                        printf("\nodd number");
                }
}


void salary(float* basic_s){


                float da,ta,hra,total;


                if((*basic_s)<=5000){
                                        da=(*basic_s)*0.1;
                                        ta=(*basic_s)*0.2;
                                        hra=(*basic_s)*0.25;
                }
                else{
                                        da=(*basic_s)*0.15;
                                        ta=(*basic_s)*0.20;
                                        hra=(*basic_s)*0.25;
                        }


                                total=(*basic_s)+da+ta+hra;
                                printf("\nThe basic salary is %f and the total is
%f",(*basic_s),total);


}
```

```
//using scanf()
/*Accept the price from user. Ask the user if he is a student (user may say yes or
no). If he is a student and he has purchased more than 500 than discount is 20%
otherwise discount is 10%.But if he is not a student then if he has purchased
more than 600 discount is 15% otherwise there is not discount*/
#include<stdio.h>
void billing(int*);

void main(){

	printf("\n 1.student \n 2. not a student");

	int user;
	printf("\nEnter the user num:");
	scanf("%d",&user);

	billing(&user);

}

//defination
void billing(int* user){

	float bill,dis;
	printf("\nEnter the bill:");
	scanf("%f",&bill);
	float bill_ini=bill;

	if((*user)==1){
```

```
                if(bill>500){
                        dis=bill*0.2;
                        bill=bill-dis;

                }
                else{
                        dis=bill*0.1;
                        bill=bill-dis;

                }
        }else{
                if((*user)==2){
                        if(bill>600){
                                dis=bill*0.15;
                                bill=bill-dis;

                        }
                        else{
                                printf("no discount\n");
                        }
                }
                else{
                        printf("invalid inputs\n");
                }
        }


        printf("bill is %f",bill);

}
```

Assignment 3

Q1

//print no from 1 to 10

```
#include<stdio.h>
void print_no(int*,int*);//declaration
void main(){

	int num,end;
	printf("Enter the num:");
	scanf("%d",&num);
	printf("Enter the end:");
	scanf("%d",&end);

	print_no(&num,&end);//calling
}

//defination
void print_no(int* num,int* end){
	int i=(*num);

	while(i<=(*end)){
		printf("%d\n",i);
		i++;
	}

}
```

Q2

//print table

```
#include<stdio.h>
void table(int*);//declaration

void main(){
```

```
	int num;
	printf("Enter the number:");
	scanf("%d",&num);
	//func call
	table(&num);
}

//defination
void table(int* num){
	int a;
	int i=0;

	while(i<10){
		a=++i;
		printf("%d * %d = %d \n",(*num),a,(*num)*a);

	}
}
```

Q3

```
//sum of the number within given range
#include<stdio.h>
void sum_range(int*,int*);//declaration

void main(){
	int s=1,e=5;
	sum_range(&s,&e);//call;

}

void sum_range(int* s,int* e){
```

```
	int sum=0;

	int i=*s;
	while(i<=(*e)){
		sum=sum+i;
		i++;
	}

	printf("Sum is %d",sum);
}
```

Q4

```
//prime number
#include<stdio.h>
void prime(int*);
void main(){
	int num;
	printf("Enter the number:");
	scanf("%d",&num);
	//call
	prime(&num);
}
void prime(int* num){

	int i=2;
	while(i<(*num)){
		if((*num)%i!=0){
			i++;
		}
		else{
			break;
		}
```

```
        }

        if(i==(*num)){
                printf("Number is prime");
        }
        else{
                printf("number is not prime");
        }
}
```

Q5

```
//armstrong by count of digits//4 digit 1634 3digit 153
#include<stdio.h>
#include<math.h>
void arms(int*);

void main(){

        int num;
        printf("Enter the num:");
        scanf("%d",&num);
        arms(&num);

}

void arms(int* num){

        int rem;
        int num_O=(*num);
        int num_2=(*num);
        int sum_P=0;
```

```
int count=0;
while((*num)>0){
	(*num)=(*num)/10;
	count++;
}

while(num_2>0){
	rem=num_2%10;
	num_2=num_2/10;//dec

//pow(base,power)

//power=pow(rem,count);
	//by using loop // to calculate the power as per count
			int power=1;
			int cnt=count;

				while(cnt!=0){
					power=power*rem;
					cnt--;
				}

	sum_P=sum_P+power;
}



if(num_O==sum_P)
{
	printf("%d is armstrong number",num_O);

}
```

```
	else{
		printf("%d is not an armstrong number",num_O);
	}

}
```

Q6

```
//perfect number
#include<stdio.h>
void perfect(int*);//declaration

void main(){
	int num;
	printf("Enter the number:");
	scanf("%d",&num);
	perfect(&num);//calling
}
//defination
void perfect(int* num){
	int sum_F=0;

	for(int i=1;i<(*num);i++){
		if((*num)%i==0){
			sum_F=sum_F+i;//adding factors here
		}
	}

	// check it is perfect number or not
	if((*num)==sum_F){
		printf("It is a perfect number %d",(*num));

	}
```

```
	else{
		printf("It is not a perfect number %d",(*num));
	}
}
```

Q7

```
//factorial number
#include<stdio.h>
void fac(int*);
//declaration
void main(){
	int num;
	printf("Enter the number:");
	scanf("%d",&num);
	fac(&num);
}

//defination
void fac(int* num){
	int fact=1;
	int i=(*num);

	while(i>0){
		fact=fact*i;
		//printf("\n fact is %d and i is %d",fact,i);
		i--;
	}

	printf("\n factorial of %d is %d",(*num),fact);

}
```

Q8

```
//strong number
#include<stdio.h>

//declaration
void strong(int*);



void main(){

	int num;
	printf("Enter the number:");
	scanf("%d",&num);
	strong(&num);
}

//defination

void strong(int* num){

	int num_O=(*num),rem,sum_fact=0;
	while((*num)>0){
		rem=(*num)%10;
		(*num)=(*num)/10;//inc /dec
			//for factorial
			int fact=1;//for each iteration it must be 1 initialy
				while(rem>0){
					fact=fact*rem;
					rem--;


				}
		sum_fact=sum_fact+fact;
```

```
	}

	//check the sum of fact of each digit
	if(num_O==sum_fact){
			printf("It is strong number");
	}
	else{
			printf("It is not strong number");
	}




}
```

Q9

```
//palindrom num -->num==reverse of that num
#include<stdio.h>
//declaration
void palindrome(int*);
void main(){
	int num;
	printf("Enter the number :");
	scanf("%d",&num);
	//call
	palindrome(&num);


}


//defination
void palindrome(int* num){
```

```
	int num_O=(*num),rev=0;
	// seperate the digits
	int rem=0;

	while((*num)>0){
		rem=(*num)%10;
		(*num)=(*num)/10;
		rev=rev*10+rem;
	}

	if(rev==num_O){
		printf("The number is palindrom %d",num_O);

	}
	else{
		printf("The number is not palindrom %d ",num_O);
	}
}
```

Q10

```
//sum of first and last digit of the number
#include<stdio.h>
void f_L(int*);//declaration
void main(){
	int num;
	printf("Enter the number :");
	scanf("%d",&num);
	f_L(&num);//calling
}

//defination
void f_L(int* num){
```

```
	int O_num=(*num);
	int last_digit,first_digit,rem,sum=0;
	last_digit=(*num)%10;
	printf("\nlast %d",last_digit);

	while((*num)>0){
		rem=(*num)%10;
		(*num)=(*num)/10;
		//printf("nnn");
	}
	first_digit=rem;
	printf("\nfirst %d",first_digit);

	sum=first_digit+last_digit;

	printf("\nThe sum of last and first digit of the num %d is %d",O_num,sum);

}
////////////////////////////////////////////////
Assignment4
Q1//strong numbers
#include<stdio.h>
void stng(int*);
void main(){
	int end;
	printf("Enter the end of the range:");
	scanf("%d",&end);
	stng(&end);

}
```

```
void stng(int* end){
	int k,rem;

	printf("strong numbers are: ");

	for(k=1;k<=(*end);k++){
		int num=k;

		int sum_F=0;

		while(num>0){


			rem=num%10;
			num=num/10;
				//calculate the fact of each digits
				int fact=1;
				while(rem>0){
					fact=fact*rem;
					rem--;
				}

				//sum of the fact of each digits
				sum_F=sum_F+fact;


		}

		//equalate sum with original number
		if(k==sum_F){
			printf("%d\t",k);
		}
```

```
        }
}
```

Q2

```
//range prime
#include<stdio.h>
void prime(int*);
void main(){
        int end;
        printf("enter the end of the range :");
        scanf("%d",&end);
        prime(&end);//call
}

//defination
void prime(int* end){
                int k;


        for(k=1;k<=(*end);k++){
                int num=k;
                //check for each k the number is prime or not
                int i=2;//start mod from 2 check up to 1 no before that number
                        while(i<num){
                                //check num is completely divisible or not
                                if(num%i!=0){
                                        i++;
                                }
                                else{
                                        break;
                                }
```

```
                }

            if(i==num){
                printf("%d\t",k);
            }


    }
}
```

Q3

```
//print the armstrong number in the given range
#include<stdio.h>
void armstrong(int*);
void main(){
    int end;
    printf("enter the end of the range");
    scanf("%d",&end);
    armstrong(&end);
}
void armstrong(int* end){
        //1,2,3,4,5.....100
    int k,rem;

    printf("armstrong numbers are : ");
    /*
    for(k=1;k<=end;k++){
        //now check the each k is armstrong or not
        int num=k;//assign k to num bcz num is going to be modify
        int sum=0;//we want sum=0 for everytime when we start to check
```

```
                while(num>0){
                        rem=num%num;
                        num=num/10;
                        sum=sum+(rem*rem*rem);
                }

        if(k==sum){
                printf("%d\t",k);
        }


}
*/

for(k=1;k<=(*end);k++){

        int num=k;
        int num_2=k;
        //int num=num_2=k; k==>num_2 and num_2==>num

        int count=0;
        int sum=0;
        //to check the count
        while(num>0){
                num=num/10;
                count++;
        }

        //sum of the power
                        while(num_2>0){
                                rem=num_2%10;
```

```
                num_2=num_2/10;

                //calculate the power
                int power=1;
                int cnt=count;
                        while(cnt!=0){
                                power=power*rem;
                                cnt--;
                        }

                sum=sum+power;
        }


        //check that number is equal to that sum of the power or not ?
        if(sum==k){
                printf(" %d\t",k);
        }

    }

}
```

Q4

```
//perfect number
#include<stdio.h>
void perfect(int*);
void main(){
    int end;
    printf("Enter the end:");
    scanf("%d",&end);
    perfect(&end);
```

```
}

void perfect(int* end){
	int k;
	for(k=1;k<=(*end);k++){
			int num=k;
			int sum=0;
				for(int i=1;i<num;i++){
					if(num%i==0){
						sum=sum+i;
					}
				}

				if(k==sum){
					printf("%d\n",k);
				}
	}

}
```

Q5

```
//fibonacci series
#include<stdio.h>
void fibo(int*,int*);

void main(){
	int prefib1=0;
	int prefib2=0;
	fibo(&prefib1,&prefib2);

}
```

```
void fibo(int* prefib1,int* prefib2){

	int fib=0,end;

	printf("Enter the range 0 to :");
	scanf("%d",&end);
	//solution to handle the infinity condition  1 1 1 1 -->(if)
	if((*prefib1)==0 && (*prefib2)==0){
			fib=(*prefib2)+(*prefib1);
			printf("%d \t",fib);
			(*prefib1)++;
			fib=(*prefib2)+(*prefib1);
			printf("%d\t",fib);
	}

	while(fib<=end)
	{
			(*prefib1)=(*prefib2);
			(*prefib2)=fib;
			fib=(*prefib2)+(*prefib1);
			if(fib<=end){
				printf("%d\t",fib);
			}
	}
}
```

****