Assignment4

Q1

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

        }

}
```

Q2

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

        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

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

    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);
                }
    }

}
```

Q4

```
//strong numbers
#include<stdio.h>
void main(){
	int k,end,rem;
	printf("Enter the end of the range:");
	scanf("%d",&end);

	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);
		}
	}
}
```

Q5

```
//fibonacci series
#include<stdio.h>
void main(){
	int prefib1=0,prefib2=0,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);
```

```
                    }
            }


}
```