Assignment 6

Pointer Assignment 1

Q1. Finding F from C (temp).

```
//Finding F from C (temp).
#include <stdio.h>
void ftoc(int*);
void main()
{
	int c;
	printf("Enter celcius:");
	scanf("%d", &c);
	ftoc(&c);
}
void ftoc(int* c){

	float f;

	f = (*c*9/5)+32;

	printf("Temperature in fahrenheit is: %f",f);
}
```

Q2. Finding area and perimeter of rectangle or circle.

```
//Finding area and perimeter of rectangle or circle.
void circle(float* radius){
	float PI = 3.14159;
	float area, perimeter;
	   area = PI**radius**radius;
		printf("Area of circle is: %.2f\n", area);
		perimeter = 2*PI**radius;
		printf("Perimeter of circle is: %.2f\n", perimeter);
}
void rectangle(float* length, float* breadth){
	float area, perimeter;
	   area = *length**breadth;
		printf("Area of rectangle is: %.2f\n", area);
		perimeter = 2*(*length + *breadth);
		printf("Perimeter of rectangle is: %.2f\n", perimeter);
}
void main(){
	float length, breadth, radius;
	printf("Enter length and breadth : ");
	scanf("%f, %f", &length, &breadth);
	rectangle(&length, &breadth);
```

```
	printf("Enter radius : ");
	scanf("%f", &radius);
	circle(&radius);
}
```

Q3. Accept a 3 digit number from user and find the sum of the digits and also reverse the number

```
//Accept a 3 digit number from user and find the sum of the digits and also reverse the number
void sum(int*);
void reverse(int*);
void main(){
	int num;
	printf("Enter a number:");
	scanf("%d", &num);
	reverse(&num);
	sum(&num);
}
void sum(int* num){
	int sum, a, b, c;

	a = *num%10;
	*num = *num/10;
	b = *num%10;
	c = *num/10;

	sum = a + b + c;
	printf("Sum of number: %d\n", sum);
}

void reverse(int* num){
	int a, b, c, rev;

	a = *num%10;
	*num = *num/10;
	b = *num%10;
	c = *num/10;
	rev = (a*100) + (b*10) + c;
	printf("Reverse of number: %d\n", rev);
}
```

Q4. Check if the given number is even or odd.

```
//Check if the given number is even or odd
void even_odd(int* num){
```

```
	if(*num%2==0){
		printf("Number is Even");
	}else{
		printf("Number is Odd");
	}
}
int main()
{
	int num=28;
	even_odd(&num);
}
```

Q5. Calculating total salary based on basic. If basic <=5000 da, ta and hra will be 10%,20% and 25% respectively otherwise da, ta and hra will be 15%,25% and 30% respectively.

```
void basic_salary(int*);

void basic_salary(int *basic)
{
	int da, ta, hra;
	int total_salary;

	if(*basic<=5000){
		da = (*basic*10)/100;
		ta = (*basic*20)/100;
		hra = (*basic*25)/100;
	}else{
		da = (*basic*15)/100;
		ta = (*basic*25)/100;
		hra = (*basic*30)/100;
	}
	total_salary = *basic + da + ta + hra;
	printf("Total Salary: %d", total_salary);
}
void main()
{
	int basic;
	printf("Enter basic amount: ");
	scanf("%d", &basic);  // it will not take the value given by the user as we have declared the value in the function
	basic_salary(&basic);  //the value that we pass in the funcion is considered for operation
}
```

Q6. Write a program to check if person is eligible to marry or not (male age >=21 and female age>=18).

```
//Write a program to check if person is eligible to marry or not (male age >=21 and female age>=18)
int eligible_for_marriage(int* age, char* gender){



	if(*gender == 'M'){
		if(*age>=21){
			printf("Male is eligible for marriage");
		}else{
			printf("Male is not eligible for marriage");
		}

	}else {
		if(*gender == 'F'){
			if(*age>=18){
				printf("Female is eligible for marriage");
			}else{
			printf("Female is not eligible for marriage");
		}
		}
	}
}
int main(){
	int age = 20;
	char gender = 'M';
	eligible_for_marriage(&age, &gender);
}
```

Pointer Assignment 2

Q1. Find the price of item when discount is given (specify different discount based on price)

```
//Find the price of item when discount is given (specify different discount based on price)

void discount(int*);
void main(){
	int price;
	printf("Enter the price:");
	scanf("%d",&price);
	discount(&price);
}
void discount(int* price){
	float discount;
	float finalprice;
```

```
	if(*price<=500){
		discount = *price*0.1;
	}else if(*price>500 && *price<=1000){
		discount = *price*0.2;
	}else if(*price>1000 && *price<=2000){
		discount = *price*0.25;
	}
	finalprice = *price-discount;
	printf("Final Price = %.2f", finalprice);
}
```

Q2. Write a program to find greatest of three numbers using nested if-else.

```
//Write a program to find greatest of three numbers using nested if-else.
void greatest(int*a, int*b, int*c)
{
	*a>*b?(*a>*c?printf("%d",*a):printf("%d",*c)):(*b>*c?printf("%d",*b):printf("%d",
*c));
}
void main(){
	int a =20, b =30, c = 40;
	greatest(&a,&b,&c);
}
```

Q3. Accept two numbers from user and an operator (+,-,/,*,%) based on that perform the desired operations.

```
//Accept two numbers from user and an operator (+,-,/,*,%) based on that perform the
desiredoperations
void operators(int* a, int* b, char* sy)
{
	int c;

	if(*sy == '+'){
		c = *a + *b;
	}else if(*sy == '-'){
		c = a - b;
	}else if(*sy == '*'){
		c = *a * *b;
	}else if(*sy == '/'){
		c = *a / *b;
	}else if(*sy == '%'){
		c = *a % *b;
	}
	printf("The result is %d", c);

}
void main(){
```

```
	int a, b;
	char sy;
	printf("Enter 2 numbers and a operator: ");
	scanf("%d, %d, %c", &a, &b, &sy );
	operators(&a,&b,&sy);
}
```

Q4. 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.

```
//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.
void even_odd(int* a)
{
	if(*a%2==0){
			printf("a is even\n");
		}else{
			printf("a is odd\n");
		}
}
void basic_salary(float *basicSalary)
{
	float ba, ta ,hra;
	float totalSalary;
	if(*basicSalary<=5000){
			ba = *basicSalary * 0.1;
			ta = *basicSalary * 0.15;
			hra = *basicSalary * 0.2;
		}else{
			ba = *basicSalary * 0.15;
			ta = *basicSalary * 0.20;
			hra = *basicSalary * 0.25;
		}
		totalSalary = *basicSalary + ba + ta + hra;
		printf("Total Salary is : %.2f", totalSalary);
}
void main()
{
	int a = 20;
	float basicSalary = 10000;
	even_odd(&a);
	basic_salary(&basicSalary);
}
```

Q5. 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.

```
void is_student(float *price, char *isStudent)
{

	float discount;
	float finalPrice;


	if (*isStudent == 'Y'){
		if (*price>=500){
			discount = *price * 0.2;
		}else{
			discount = *price * 0.1;
		}
	}else{
		if (*price>=600){
			discount = *price * 0.15;
		}else{
			discount = *price * 0;
		}
	}
	finalPrice = *price - discount;
	printf("Final Price is: %.2f", finalPrice);
}
void main()
{
	float price = 800;
	char isStudent = 'Y';
	is_student(&price, &isStudent);
}
```

Pointer Assignment 3

Q1. Print numbers from 1 to 10.

```
////Print numbers from 1 to 10.
void main(){
	int a;
	numbers(&a);
}
void numbers(int* x)
{
   int b = *x ;
   b =1;
	while (b<=10){
		printf("%d\n",b);
```

```
            b++;
        }
}
```

Q2. Print table for the given number.

```
//Print table for the given number
void table(int* n)
{
        int a=1, b;
        while(a<=10){
                b= *n *a;
                printf("%d\n",b);
                a++;
        }
}
void main()
{
        int num;
        printf("Enter a number:");
        scanf("%d", &num);   //if there are 2 print statements then it will take the one that is mentioned in the called function
        table(&num);
}
```

Q3. Calculate sum of numbers in the given range.

```
//Calculate sum of numbers in the given range.
void sum(int* a, int* b)
{
        int sum = 0;
        int i;
        for(i=*a; i<=*b; i++)
        sum = sum+i;
        printf("The sum of numbers in a given range is %d",sum);
}
void main()
{
        int a, b;
        printf("Enter the range of numbers:");
        scanf("%d, %d", &a, &b);

        sum(&a,&b);
}
```

Q4. Check number is prime or not.

```
//Check number is prime or not.
void is_prime(int *num)
{
```

```
	int i=2, flag = 0;

	if (*num ==0 || *num ==1){
		flag = 1;
	}
	for(i=2; i<=*num/2; i++){
		if(*num%i==0){
			flag = 1;
			break;
		}
	}
	if(flag == 0){
		printf("Number is prime number");
	}else
	printf("Number is not a prime number");
}
void main()
{
	int num;
	printf("Enter a number:");
	scanf("%d", &num);
	is_prime(&num);
}
```

Q5. Check number is armstrong or not?

```
//Check number is armstrong or not?
void is_armstrong(int* num)
{
	int count=0, temp, rem, sum=0;

	for(temp = *num; temp>0; temp= temp/10){
		count++;
	}
	for(temp = *num; temp>0; temp = temp/10){
		rem = temp%10;
		int res = 1;
		int i;
		for(i=1; i<=count; i++){
			res = res*rem;
		}
		sum = sum+res;
	}
	if(num == sum){
		printf("Number is a armstrong number");
	}else
```

```
        printf("Not a armstrong number");
}
void main()
{
        int num;
        printf("Enter the number: ");
        scanf("%d", &num);
        is_armstrong(&num);
}
```

Q6. Check number is perfect or not.

```
//Check number is perfect or not.
void is_perfect(int* num)
{
        int i, sum=0;

        int j;
for (j=1; j<=*num/2; j++){
        if(*num%j==0){
                sum = sum + j;
        }
}if(sum==*num){
        printf("Number is a prefect number");
}else
        printf("Number is not a perfect number");
}
void main(){
        int num;
        printf("Enter a number:");
        scanf("%d", &num);
        is_perfect(&num);
}
```

Q7. Find factorial of number.

```
//Find factorial of number.
void factorial(int* num)
{
        int fact=1;
        int i;
        for(i=*num; i>0; i--){
                fact = fact * i;
        }
        printf("The factorial of number is %d", fact);
}
void main(){
        int num;
```

```
	printf("Enter a number:");
	scanf("%d", &num);
	factorial(&num);
}
```

Q8. Check number is strong or not.

```
//Check number is strong or not.
void is_strong(int* num)
{
	int temp, rem, sum = 0;

	for(temp = *num; temp>0; temp = temp/10){
	rem = temp %10;
	int i;
	int fact = 1;
	for(i=rem; i>0; i--){
		fact = fact * i;
	}
	sum = sum + fact;
}if(sum == *num){
		printf("Number is a strong number");
	}else
	printf("Number is not a strong number");
}
void main()
{
	int num;
	printf("Enter a number: ");
	scanf("%d", &num);
	is_strong(&num);
}
```

Q9. Check the given number is palindrome or not?

```
//Check the given number is palindrome or not?
void is_palindrome(int* num)
{
	int rev=0, rem, temp;

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

	if(rev == temp){
		printf("Number is a palindrome");
	}else
```

```
        printf("Number is not a palindrome");
}
void main()
{
        int num;
        printf("Enter a number: ");
        scanf("%d", &num);
        is_palindrome(&num);
}
```

Q10. Add the (first and last) digit of a given number?

```
//Add the (first and last) digit of a given number
void add(int* num)
{
        int rem, sum;
                rem = *num%10;
                int temp = *num;
                while(temp>=10){
                        temp = temp/10;
        }
                sum = rem+temp;
        printf("The sum of first and last digit of the number is: %d", sum);
}
void main()
{
        int num;
        printf("Enter a number: ");
        scanf("%d", &num);
        add(&num);
}
```

Pointer Assignment 4

Q1. Print armstrong number in the the given range 1 to n?

```
//Print armstrong number in the the given range 1 to n?
void armstrong(int* range)
{
                int i;
        int temp, rem, sum , mul;

        int tempcount;
        for(i=1; i<=*range;i++){
                temp =i;
          int  count=0;
        while(temp>0){

                count++;
```

```
            temp=temp/10;
        }

        temp = i;
        sum = 0;
        while(temp>0){

            rem = temp%10;
            tempcount=count;

            mul=1;
            while(tempcount>0){

                mul = mul*rem;
                tempcount--;
            }

            sum = sum+mul;
            temp=temp/10;
        }
        if(sum==i)
        printf("%d\n", i);
        }
}
void main()
{
        int range;
        printf("Enter range:");
        scanf("%d",&range);
        armstrong(&range);
}
```

Q2. Print prime number in the given range 1 to n?

```
//Print prime number in the given range 1 to n?
void prime(int* range)
{
        int i, j, flag;

        for(i=2;i<=*range;i++){

            flag = 0;
            for(j=2;j<=i/2;j++){
                if(i%j==0)
                {
                    flag=1;
```

```
                        break;
                    }
            }if(flag == 0)
            printf("%d\n",i);
        }
}
void main()
{
        int range;
        printf("Enter the range:");
        scanf("%d", &range);
        prime(&range);
}
```

Q3. Check perfect number in the given range 1 to n?

```
//check perfect number in the given range 1 to n?
void perfect(int* n)
{
        int i,sum;

        for(i=1;i<=*n;i++){
                sum =0;
                int j=1;
                while(j<i){
                if(i%j==0){
                        sum = sum + j;
                }
                j++;
}if(sum==i)
        printf("%d\n", i);

        }
}
void main()
{
        int n;
        printf("Enter range:");
        scanf("%d", &n);
        perfect(&n);
}
```

Q4. check strong number in the given range 1 to n?

```
//check strong number in the given range 1 to n?
void strong(int* b)
{
        int num,i,temp;
```

```
        int sum;
        int rem,fact;
        for (num = 1; num <= *b; num++) {
                temp = num;
                sum=0;
                while (temp > 0) {
                        rem = temp % 10;
                        fact = 1;
                        while(rem>0) {
                                fact = fact * rem;
                                rem--;
                        }
                        sum =sum + fact;
                        temp =temp/ 10;
                }
                if (sum == num) {
                        printf("\n%d", num);
                }
        }
}

void main()
{
        int b;
        printf("Enter the range : ");
        scanf("%d",&b);
        strong(&b);
}
```

Q5. Print fibonacci series?(optional)

```
//Print fibonacci series?(optional)
void fibonacci(int* n)
{
        int i;
  int t1 = 0, t2 = 1;
  int nextTerm = t1 + t2;

  printf("Fibonacci Series: %d, %d, ", t1, t2);

  for (i = 3; i <= *n; ++i) {
    printf("%d, ", nextTerm);
    t1 = t2;
    t2 = nextTerm;
    nextTerm = t1 + t2;
  }
```

```
}
void main()
{
        int n;
        printf("Enter the number of terms: ");
    scanf("%d", &n);
        fibonacci(&n);
}
```