**Recursion And Pointer:**

**Recursion:**

**//Call stack:**

**#include <stdio.h>**

**#include <string.h>**

**#include <math.h>**

**#include <stdlib.h>**

**#define testcase int tc; scanf("%d",&tc);while(tc--)**

**#define ll long long int**

**//Call stack**

**void world(){**

**printf("Hello world\n");**

**}**

**void bangladesh(){**

**printf("Hello Bangladesh\n");**

**world(); // call world function...**

**printf("Bangladesh\n");**

**}**

**void dhaka(){**

**printf("Hello Dhaka\n");**

**bangladesh(); // call world function...**

**printf("Dhaka\n");**

**}**

**int main() { // main function at first call and call stack automatic call it.**

**dhaka();**

**printf("End.....!");**

    return 0;

}

**Recursion: 1 2 3 4 5**

**#include <stdio.h>**

**#include <string.h>**

**#include <math.h>**

**#include <stdlib.h>**

**#define testcase int tc; scanf("%d",&tc);while(tc--)**

**#define ll long long int**

**int func(int i,int n){**

**if(i==n+1) return 0;**

**printf("%d\n",i);**

**return func(i+1,n);**

**}**

**int main() {**

**int n;**

**scanf("%d",&n);**

**func(1,n);**

**return 0;**

**}**

**Recursion: 5 4 3 2 1**

**#include <stdio.h>**

**#include <string.h>**

**#include <math.h>**

**#include <stdlib.h>**

**#define testcase int tc; scanf("%d",&tc);while(tc--)**

**#define ll long long int**

**int func(int n){**

**if(n==0) return 0; //just return..**

**printf("\n%d",n);**

**return func(n-1);**

**}**

**int main() {**

**func(5);**

**return 0;**

**}**

**Recursion: 5 4 3 2 1 Also.**

**#include <stdio.h>**

**#include <string.h>**

**#include <math.h>**

**#include <stdlib.h>**

**#define testcase int tc; scanf("%d",&tc);while(tc--)**

**#define ll long long int**

**void fun(int i){**

**if(i==6) return;**

**fun(i+1); // 5 4 3 2**

**printf("%d\n",i);**

**}**

**int main() {**

**fun(1);**

**return 0;**

**}**

**Pointer:**

**Pointer:**

**#include <stdio.h>**

**#include <string.h>**

**#include <math.h>**

**#include <stdlib.h>**

**#define testcase int tc; scanf("%d",&tc);while(tc--)**

**#define ll long long int**

**int main() {**

**int x = 10;**

**int \*ptr = &x; // 4 bytes store.**

**/\***

**printf("X er address: %p\n", &x); //%p**

**printf("ptr er value: %p\n", ptr);**

**printf("ptr er address: %p", &ptr);**

**\*/**

**x=200;**

**printf("X er value: %d\n", x); //%p**

**printf("x er dereferance value: %d\n", \*ptr);**

**return 0;**

**}**

**X er value: 200**

**x er dereferance value: 200**

**Call by value:**

**#include <stdio.h>**

**#include <string.h>**

**#include <math.h>**

**#include <stdlib.h>**

**#define testcase int tc; scanf("%d",&tc);while(tc--)**

**#define ll long long int**

**void fun(int x){**

**printf("Fun x different address: %p\n",&x);**

**}**

**int main() {**

**int x=10;**

**printf("main x er address: %p\n",&x);**

**fun(x);**

**x = 200;**

**return 0;**

**}**

**main x er address: 0x7ffe1d46717c**

**Fun x different address: 0x7ffe1d46715c**

**Call by reference:**

**#include <stdio.h>**

**#include <string.h>**

**#include <math.h>**

**#include <stdlib.h>**

**#define testcase int tc; scanf("%d",&tc);while(tc--)**

**#define ll long long int**

**void fun(int \*p){ // x er address assign here**

**printf("Main er x er value: %d\n",\*p);**

**\*p=500; // dereferance...**

**}**

**int main() {**

**int x=10;**

**printf("x er address: %p\n", &x);**

**fun(&x);**

**printf("x er value: %d\n", x);**

**return 0;**

**}**

**x er address: 0x7ffe7f4e280c**

**Main er x er value: 10**

**x er value: 500**