BATCH

RECURSION

C AND C++

PROGRAMMING MASTERCLASS

Class-06

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https://www.hsccrackers.com/

SCAN ME

Switch Case

```c
int main(){
    int no_of_day = 3;
    printf("Today is %dth day of the week\n",no_of_day);
    char day_name[10];
    switch (no_of_day) {
        case 1:
            strcpy(day_name, "Saturday");
            break;
        case 2:
            strcpy(day_name, "Sunday");
            break;
        case 3:
            strcpy(day_name, "Monday");
            break;
        case 4:
            strcpy(day_name, "Tuesday");
            break;
        case 5:
            strcpy(day_name, "Wednesday");
            break;
        case 6:
            strcpy(day_name, "Thursday");
            break;
        case 7:
            strcpy(day_name, "Friday");
            break;
        default:
            break;
    }
    printf("So, today is %s\n",day_name);
}
```

Calculate Time

```c
#include <stdio.h>
#include<time.h>
int main(){
    clock_t start_time,end_time;
    double time_elapsed;
    start_time = clock();
    int a = 0;
    for(int i = 0;i < 1000000000;i++){
        a++;
    }
    end_time = clock();
    time_elapsed = (double)(end_time-start_time)/CLOCKS_PER_SEC;
    printf("The time taken by this program is : %lf\n",time_elapsed);
}
```

Random Number

```c
#include <stdio.h>
#include<stdlib.h>
int main(){
    for(int i = 0;i < 5;i++){
        printf("Random number: %d\n",rand());
    }
}
```

```c
#include <stdio.h>
#include<stdlib.h>
#include<time.h>
int main(){
    time_t t;
    srand((unsigned) time(&t));
    for(int i = 0;i < 5;i++){
        printf("Random number: %d\n",rand());
    }
}
```

Ternary Operator

```c
#include <stdio.h>
#include<stdlib.h>
#include<time.h>
int main(){
    int a,b;
    printf("Enter two numbers: \n");
    scanf("%d %d",&a,&b);
    int max = a > b ? a  : b;
    printf("The larger value between these two are: %d\n",max);
}
```

```c
#include <stdio.h>
#include<stdlib.h>
#include<time.h>
int main(){
    int a,b,c;
    printf("Enter three numbers: \n");
    scanf("%d %d %d",&a,&b,&c);
    int max = c > (a > b ? a  : b) ? c : (a > b ? a  : b);
    printf("The larger value between these three are: %d\n",max);
}
```

Constants

```c
#include <stdio.h>
#include <math.h>
#define pi 2*acos(0)
#define max 10e9
int main(){
    printf("The value of pi is : %lf\n",pi);
    printf("The value of max is : %lf\n",max);
}
```

```c
#include <stdio.h>
#include <math.h>
#define int long long
int32_t main(){
    printf("Size of int is : %lld\n",(int)sizeof(int));
}
```

```
Size of int is : 8
Program ended with exit code: 0
```

Macros

```c
#include <stdio.h>
#include <math.h>
#define max(a,b) (a > b ? a : b)
#define increment(a) (++a)
int main(){
    printf("Enter two numbers: ");
    int a,b;
    scanf("%d %d",&a,&b);
    printf("The max of two numbers are: %d\n",max(a,b));
    printf("A & B after increment : %d %d\n",increment(a),increment(b));
}
```

Swap without temp

```c
#include <stdio.h>
#include <math.h>

int main(){
    printf("Enter two numbers: ");
    int a,b;
    scanf("%d %d",&a,&b);
    a = a + b;
    b = a - b;
    a = a - b;
    printf("A & B after swap : %d %d\n",a,b);
}
```

Multiline Macros

```c
#include <stdio.h>
#include <math.h>
#define max(a,b) (a > b ? a : b)
#define swap(a,b) { \
a = a+b; \
b = a-b; \
a = a-b; \
}

int main(){
    printf("Enter two numbers: ");
    int a,b;
    scanf("%d %d",&a,&b);
    swap(a,b);
    printf("A & B after swap : %d %d\n",a,b);
}
```

Enumeration

```c
#include <stdio.h>
#include <math.h>
enum COLOR {RED,GREEN,BLUE};
int main(){
    printf("Assigned number for RED : %d\n",RED);
    printf("Assigned number for GREEN : %d\n",GREEN);
    printf("Assigned number for BLUE : %d\n",BLUE);

}
```

```c
#include <stdio.h>
#include <math.h>
enum COLOR {RED = 11,GREEN = 10,BLUE = 12};
int main(){
    printf("Assigned number for RED : %d\n",RED);
    printf("Assigned number for GREEN : %d\n",GREEN);
    printf("Assigned number for BLUE : %d\n",BLUE);

}
```

File Writing

```c
#include <stdio.h>
int main(){
    FILE *fp;
    char filename[] = "input.txt";
    fp = fopen(filename, "w");
    fprintf(fp, "A file created by this program.\n");
    fprintf(fp, "Happy Coding.");
    fclose(fp);
    return 0;
}
```

```
A file created by this program.
Happy Coding.
```

File Modes

File Opening Modes In C Programming Language		
NO.	**Modes**	**Description**
1.	**r**	It's opens an existing text file for reading
2.	**w**	It is used to open file for writing. If file doesn't exist, then a new file is created.
3.	**a**	It opens a text file for writing in appending mode. If it does not exist, then a new file is created. Data is added to the end of the file.
4.	**r+**	It will open a text file for both reading and writing.
5.	**w+**	This mode opens text file for both reading and writing, It first truncates the file to zero length if it exists, If file doesn't exist, then new file is created.
6.	**a+**	This mode opens a text file for both reading and writing, It creates the file if it does not exist.

File Append

```c
#include <stdio.h>
int main(){
    FILE *fp;
    char filename[] = "input.txt";
    fp = fopen(filename, "a");
    fprintf(fp, "Added Line to my existing file.\n");

    return 0;
}
```

File Reading

```c
#include <stdio.h>
int main(){
    FILE *fp;
    char filename[] = "input.txt";
    fp = fopen(filename, "r");
    int t;
    fscanf(fp, "%d",&t);
    while (t--) {
        int a,b;
        fscanf(fp, "%d %d",&a,&b);
        printf("%d %d\n",a,b);
    }
    return 0;
}
```

File Handling

Task:

input.txt একটি ফাইল এ থাকা সকল নাম্বার ইনপুট নিয়ে যোগ করে অপর একটি ফাইল

output.txt এ আউটপুট দিতে hobe