C PROGRAMING / LINUX [DASL-100]

WEEK 5 [Section 9]

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> **C Program to Store Information of Students Using Structure**

> This program stores the information (name and row) of 5 students using structures.

```c
#include <stdio.h>
struct student
{
    char name[50];
    int roll;
    float marks;
} s[10];

int main()
{
    int i;

    printf("Enter information of students:\n");

    // storing information
    for(i=0; i<10; ++i)
    {
        s[i].roll = i+1;

        printf("\nFor roll number%d,\n",s[i].roll);

        printf("Enter name: ");
        scanf("%s",s[i].name);

        printf("Enter marks: ");
        scanf("%f",&s[i].marks);

        printf("\n");
    }

    printf("Displaying Information:\n\n");
    // displaying information
    for(i=0; i<10; ++i)
    {
        printf("\nRoll number: %d\n",i+1);
        printf("Name: ");
        puts(s[i].name);
        printf("Marks: %.1f",s[i].marks);
        printf("\n");
    }
    return 0;
}
```

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➢ **C Program to Write a Sentence to a File**
  ➢**File Operations**
    ➢Creating a new file
    ➢Opening an existing file
    ➢Closing a file
    ➢Reading from and writing information to a file

File Mode	Meaning of Mode	During Inexistence of file
r	Open for reading.	If the file does not exist, fopen() returns NULL.
rb	Open for reading in binary mode.	If the file does not exist, fopen() returns NULL.
w	Open for writing.	If the file exists, its contents are overwritten. If the file does not exist, it will be created.
wb	Open for writing in binary mode.	If the file exists, its contents are overwritten. If the file does not exist, it will be created.
a	Open for append. i.e, Data is added to end of file.	If the file does not exists, it will be created.
ab	Open for append in binary mode. i.e, Data is added to end of file.	If the file does not exists, it will be created.
r+	Open for both reading and writing.	If the file does not exist, fopen() returns NULL.
rb+	Open for both reading and writing in binary mode.	If the file does not exist, fopen() returns NULL.
w+	Open for both reading and writing.	If the file exists, its contents are overwritten. If the file does not exist, it will be created.
wb+	Open for both reading and writing in binary mode.	If the file exists, its contents are overwritten. If the file does not exist, it will be created.
a+	Open for both reading and appending.	If the file does not exists, it will be created.
ab+	Open for both reading and appending in binary mode.	If the file does not exists, it will be created.

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➢ **Reading from a text file**

```c
#include <stdio.h>
int main()
{
    int num;
    FILE *fptr;
    fptr = fopen("C:\\program.txt","w");

    if(fptr == NULL)
    {
        printf("Error!");
        exit(1);
    }

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

    fprintf(fptr,"%d",num);
    fclose(fptr);

    return 0;
}
```

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➢ C Program to Write a Sentence to a File

➢This program stores a sentence entered by user in a file.

```c
#include <stdio.h>
#include <stdlib.h>   /* For exit() function */
int main()
{
    char sentence[1000];
    FILE *fptr;

    fptr = fopen("program.txt", "w");
    if(fptr == NULL)
    {
        printf("Error!");
        exit(1);
    }

    printf("Enter a sentence:\n");
    gets(sentence);

    fprintf(fptr,"%s", sentence);
    fclose(fptr);

    return 0;
}
```

```
Enter sentence:
I am awesome and so are files.
```

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➢ C Program to Write a Sentence to a File

➢This program reads text from a file and stores it in a string until enter 'newline' character is encountered.

```c
#include <stdio.h>
#include <stdlib.h> // For exit() function
int main()
{
    char c[1000];
    FILE *fptr;

    if ((fptr = fopen("program.txt", "r")) == NULL)
    {
        printf("Error! opening file");
        // Program exits if file pointer returns NULL.
        exit(1);
    }

    // reads text until newline
    fscanf(fptr,"%[^\n]", c);

    printf("Data from the file:\n%s", c);
    fclose(fptr);

    return 0;
}
```

Suppose, the `program.txt` file contains following text.

```
C programming is awesome.
I love C programming.
How are you doing?
```
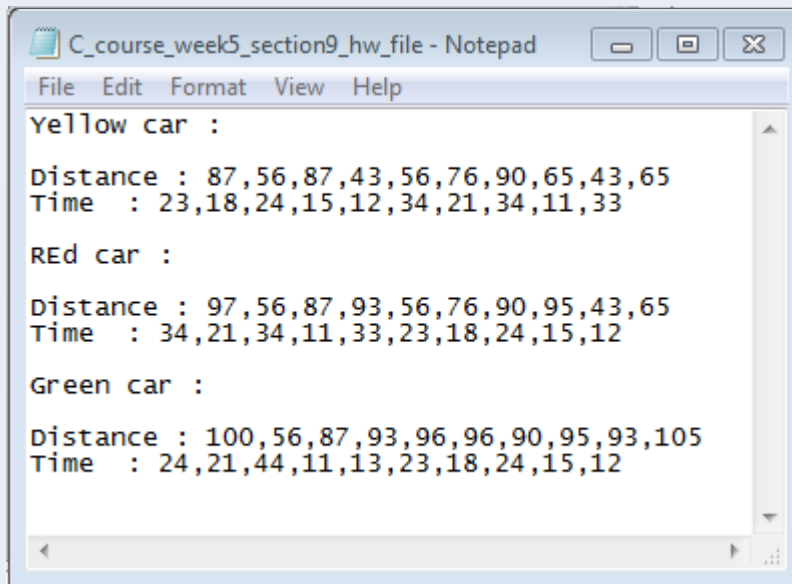
The output of the program will be:

```
Data from the file: C programming is awesome.
```
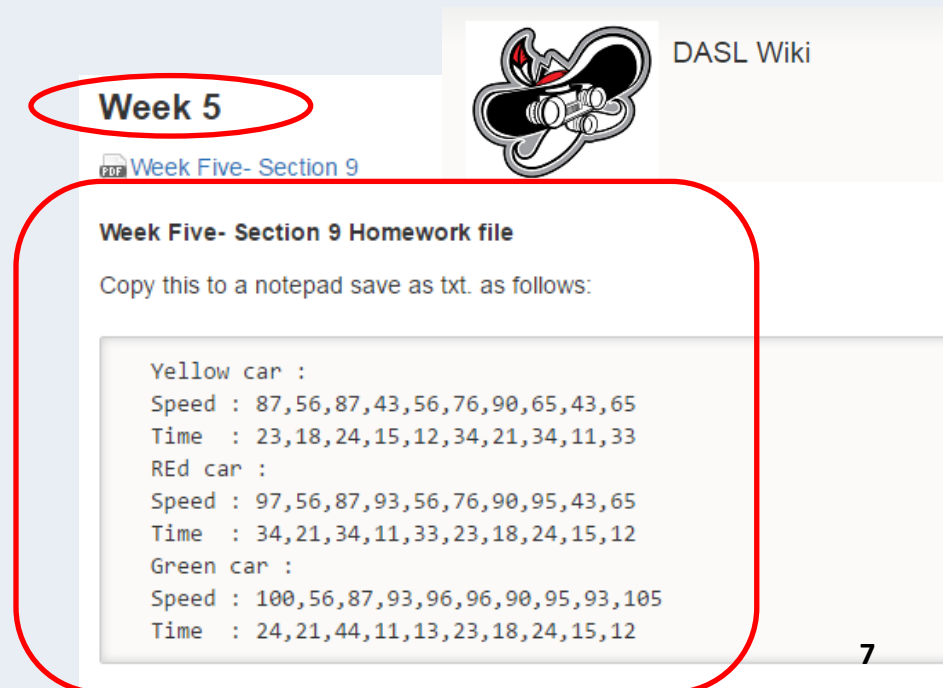
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➢ **To do List**

➢Create a program that reads the distance(km) and time(mim) from a file(e.g. see bellow) then output the average velocity [miles/hour] base on the data. Finally the program has to tell which car is the fastest. [Due Next Section, You will be asked to explain YOUR code, for the rest of the class. Add as many commentaries as you can. This will account on your final grade]

DASL Wiki

Week 5

📄 Week Five- Section 9

Week Five- Section 9 Homework file

Copy this to a notepad save as txt. as follows:

```
Yellow car :
Speed : 87,56,87,43,56,76,90,65,43,65
Time  : 23,18,24,15,12,34,21,34,11,33
REd car :
Speed : 97,56,87,93,56,76,90,95,43,65
Time  : 34,21,34,11,33,23,18,24,15,12
Green car :
Speed : 100,56,87,93,96,96,90,95,93,105
Time  : 24,21,44,11,13,23,18,24,15,12
```

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