

Using arrays, files and strings:

Reading grades from a file and processing the data:

1. Ask the user for the name of the file containing grades.
2. Call the function to read the file.
3. Call the function to find the topper of the class.
4. Call the function to find the average grade of the class.
5. Print the points obtained by the topper and the class average.

```
#include <stdio.h>
#define SIZE 10

void readfile(char filename[], int grade[], int n);
double perform ( int grade[], int n);
int topper ( int A[ ], int nn);

int main(void) {
    int grade[SIZE],topper_position;
    double av;
    char filename[30];
    printf("\nenter the name of the file.\n");
    scanf("%s",filename);
    readfile(filename, grade,SIZE);
    topper_position = topper( grade , SIZE);
    av = perform( grade, SIZE);
    printf("\ntopper got %d points.",
           grade[topper_position]);
    printf("\nclass average is %.2f points.",av);
    return 0;
}

void readfile(char filename[], int grade[], int n)
{
    int size, i;
    FILE *ifp;
    ifp = fopen(filename, "r");
    for (i=0; i< n; i++)
        fscanf(ifp, "%d", &grade[i] );
    fclose(ifp);
}

double perform ( int grade[], int n)
{
    int total= 0, i;
    double average;
    for (i=0; i < n; i++)
```

```
        total = total+ grade[i];
average = total/10.0;
return average;
}
```

```
int topper ( int A[ ], int nn)
{
    int i, max_pos;
    max_pos = nn-1;
    for (i=0; i < nn-1; i++)
        if ( A[i]> A[max_pos] )
            max_pos = i;
    return max_pos;
}
```

Exam.txt

30
40
40
50
50
60
60
90
70
60

topper got 90 points.
class average is 55.00 points.

Reading names of students and their grades from a file and processing the data:

1. Ask the user for the name of the file containing grades.
2. Call the function to read the name of each student and corresponding grade.
3. Call the function to find the position of the topper of the class.
4. Call the function to find the average grade of the class.
5. Call the print function to print the names of the students and points obtained by them, and the name of the topper and the points obtained.

```
#include <stdio.h>
#define SIZE 10

void readfile(char filename[], char student[][30], int
              grade[], int n);

int topper ( int A[ ], int nn);
void printing (char student[][30],grade[],int n, int
              top_pos)

int main(void) {
    int grade[SIZE],topper_position, i;
    double av;
    char filename[30], student[SIZE][30];
    printf("\nenter the name of the file.\n");
    scanf("%s",filename);
    readfile(filename, student, grade,SIZE);
        topper_position = topper( grade , SIZE);
    av = perform( grade, SIZE);
    printing (student, grade, SIZE, top_pos);

    return 0;
}

void readfile(char filename[], char student[][30], int
              grade[], int n)
{
    int size, i;
    FILE *ifp;
    ifp = fopen(filename, "r");
    for (i=0; i< n; i++) {
        fscanf(ifp, "%s", student[i] );
        fscanf(ifp, "%d", &grade[i] );
    }
    fclose(ifp);
}
```