Practical Workbook

CT-175
PROGRAMMING
FUNDAMENTALS

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EXERCISE Q# 01

Using C, create a file named budge.txt that contains three equal-length columns of numbers, like this:

```
-462.13 486.47    973.79
755.42  843.04    -963.67
442.58  -843.02   -462.86
-233.93 -821.67   399.59
-379.65 -556.37   837.46
55.18   -144.93   -93.15
533.73  804.64    -66.25
-922.12 914.68    -264.67
-600.27 -838.59   747.02
-962.97 49.96     -677.79
```

Now write a program named budget.c that reads this file and adds up the numbers in each column. The program's output should look like this:

Column sums are: -1774.16   -105.79   429.47

```c
#include <stdio.h>
int main() {
    FILE *file = fopen("budge.txt", "r");
    if (file == NULL) {
        printf("Error: Could not open file 'budge.txt'.\n");
        return 1;
    }

    double col1 = 0, col2 = 0, col3 = 0;
    double num1, num2, num3;

    while (fscanf(file, "%lf %lf %lf", &num1, &num2, &num3) == 3) {
        col1 += num1;
        col2 += num2;
        col3 += num3;
    }

    fclose(file);

    printf("Column sums are: %.2lf %.2lf %.2lf\n", col1, col2, col3);

    return 0;
}
```

OUTPUT:

```
Column sums are: -1774.16 -105.79 429.47
```

EXERCISE Q# 02

Write a C Program to Count Digits, Alphabets and Spaces using File Handling.

```c
#include <stdio.h>
#include <ctype.h>
int main() {
    FILE *file;
    char filename[] = "sample.txt"; // The file to process
    char ch;
    int digitCount = 0, alphabetCount = 0, spaceCount = 0;

    file = fopen(filename, "r");
    if (file == NULL) {
        printf("Error: Could not open file %s\n", filename);
        return 1;
    }
    while ((ch = fgetc(file))!= EOF) {
        if (isdigit(ch)) {
            digitCount++;
        } else if (isalpha(ch)) {
            alphabetCount++;
        } else if (isspace(ch)) {
            spaceCount++;
        }
    }

    fclose(file);

    printf("Digits: %d\n", digitCount);
    printf("Alphabets: %d\n", alphabetCount);
    printf("Spaces: %d\n", spaceCount);
    return 0;
}
```
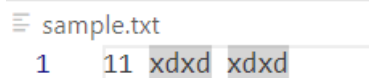
OUTPUT:

```
Digits: 2
Alphabets: 5
Spaces: 2
```

sample.txt

```
1    11 xdxd xdxd
```