Lab Report - 11

SE1012 – Programming methodology

Lab 11

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Activity 01 :

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

// Define the structure
typedef struct {
    char title[100];
    char author[100];
    int pages;
} book_t;

// Function to print book details
void print_book(book_t book) {
    printf("Book Title: %s, Author: %s, Pages: %d\n", book.title, book.author,
book.pages);
}

int main() {
    // Create and initialize a book
    book_t myBook;
    strcpy(myBook.title, "C Programming");
    strcpy(myBook.author, "K&R");
    myBook.pages = 272;

    // Call the function
    print_book(myBook);

    return 0;
}
```

```
it23426108@MLBVDI-LNN-0003:$ gcc lab11.c -o lab11
it23426108@MLBVDI-LNN-0003:$ ./lab11
Book Title: C Programming, Author: K&R, Pages: 272
```

Activity 02:

```c
#include <stdio.h>

// Define the structure
typedef struct {
    int width;
    int height;
} rectangle_t;

// Function to update rectangle dimensions using a pointer
void update_rectangle(rectangle_t *rect) {
    printf("Enter width: ");
    scanf("%d", &rect->width);
    printf("Enter height: ");
    scanf("%d", &rect->height);
}

int main() {
    rectangle_t myRect;

    // Update rectangle dimensions
    update_rectangle(&myRect);

    // Print updated values
    printf("Updated Rectangle Width: %d, Height: %d\n", myRect.width, myRect.height);

    return 0;
}
```

```
it23426108@MLBVDI-LNN-0003:$ gcc lab11.c -o lab11
it23426108@MLBVDI-LNN-0003:$ ./lab11
Enter width: 5
Enter height: 10
Updated Rectangle Width: 5, Height: 10
```

Activity 03 :

```c
#include <stdio.h>

// Define the structure
typedef struct {
    char name[100];
    int age;
    float gpa;
} student_t;

// Function to get student details from user and return the structure
student_t get_student() {
    student_t s;

    printf("Enter student name: ");
    scanf(" %[^\n]", s.name);  // Reads full name including spaces
    printf("Enter age: ");
    scanf("%d", &s.age);
    printf("Enter GPA: ");
    scanf("%f", &s.gpa);

    return s;
}
```

```c
}

int main() {
    // Get student details
    student_t student = get_student();

    // Display student details
    printf("Student Name: %s, Age: %d, GPA: %.1f\n", student.name, student.age, student.gpa);

    return 0;
}
```

```
it23426108@MLBVDI-LNN-0003:$ gcc lab11.c -o lab11
it23426108@MLBVDI-LNN-0003:$ ./lab11
Enter student name: Alice
Enter age: 20
Enter GPA: 3.8
Student Name: Alice, Age: 20, GPA: 3.8
```

Activity 04:

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

// Define the structure
typedef struct {
    char name[100];
    int id;
    float salary;
} employee_t;

// Function to print the employee with the highest salary
void print_highest_salary(employee_t employees[], int size) {
    int max_index = 0;
    for (int i = 1; i < size; i++) {
        if (employees[i].salary > employees[max_index].salary) {
            max_index = i;
        }
    }

    printf("Highest Salary: %s, ID: %d, Salary: %.0f\n",
           employees[max_index].name,
           employees[max_index].id,
           employees[max_index].salary);
}
```

```c
            employees[max_index].salary);
}

int main() {
    employee_t employees[5];

    // Input details for 5 employees
    for (int i = 0; i < 5; i++) {
        printf("Enter details for Employee %d\n", i + 1);
        printf("Name: ");
        scanf(" %[^\n]", employees[i].name);
        printf("ID: ");
        scanf("%d", &employees[i].id);
        printf("Salary: ");
        scanf("%f", &employees[i].salary);
    }

    // Print employee with highest salary
    print_highest_salary(employees, 5);

    return 0;
}
```

```
it23426108@MLBVDI-LNN-0003:$ gcc lab11.c -o lab11
it23426108@MLBVDI-LNN-0003:$ ./lab11
Enter details for Employee 1
Name: John
ID: 101
Salary: 5000
Enter details for Employee 2
Name: Jane
ID: 102
Salary: 6000
Enter details for Employee 3
Name: Mike
ID: 103
Salary: 4500
Enter details for Employee 4
Name: Sara
ID: 104
Salary: 4800
Enter details for Employee 5
Name: Tom
ID: 105
Salary: 4700
Highest Salary: Jane, ID: 102, Salary: 6000
```

Activity 05 :

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

int main() {
    char names[2][100];
    int ids[2];
    int scores[2];

    // Input for 2 students
    for (int i = 0; i < 2; i++) {
        printf("Enter name of student %d: ", i + 1);
        scanf(" %[^\n]", names[i]);
        printf("Enter ID of student %d: ", i + 1);
        scanf("%d", &ids[i]);
        printf("Enter score of student %d: ", i + 1);
        scanf("%d", &scores[i]);
    }

    // Print details of student 1
    printf("%s (%d), Score: %d\n", names[0], ids[0], scores[0]);

    return 0;
}
```

```
it23426108@MLBVDI-LNN-0003:$ gcc lab11.c -o lab11
it23426108@MLBVDI-LNN-0003:$ ./lab11
Enter name of student 1: Tom
Enter ID of student 1: 111
Enter score of student 1: 95
Enter name of student 2: Jerry
Enter ID of student 2: 112
Enter score of student 2: 88
Tom (111), Score: 95
```

Activity 06:

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

// Define the structure
typedef struct {
    char title[100];
    int ratings[5];
} movie_t;

// Function to calculate and print average rating
void print_average_rating(movie_t movie) {
    int sum = 0;
    for (int i = 0; i < 5; i++) {
        sum += movie.ratings[i];
    }
    float average = sum / 5.0;
    printf("Average Rating for %s: %.1f\n", movie.title, average);
}

int main() {
    movie_t myMovie;
```

```c
int main() {
    movie_t myMovie;

    // Input movie title
    printf("Enter movie title: ");
    scanf(" %[^\n]", myMovie.title);

    // Input 5 ratings
    printf("Enter 5 ratings:\n");
    for (int i = 0; i < 5; i++) {
        scanf("%d", &myMovie.ratings[i]);
    }

    // Print average rating
    print_average_rating(myMovie);

    return 0;
}
```

```
it23426108@MLBVDI-LNN-0003:$ gcc lab11.c -o lab11
it23426108@MLBVDI-LNN-0003:$ ./lab11
Enter movie title: Inception
Enter 5 ratings:
5
4
5
4
5
Average Rating for Inception: 4.6
```