# DATA STRUCTURES AND ALGORITHMS ASSIGNMENT

# Title of the assignment: Structures and Pointers

## Assignment No: 1 Year & Branch: II B.Tech CSE - F Section

1. Implementation of Structures (Define a structure named Friends with members:

name, pet name, phone number, and a nested structure named Type with members:

Type of friend (School, College or Area friend), name of common friends and places

visited together. Write a C program to input atleast 3 friends data and display the

details in proper time format.)

coding:

#include <stdio.h>

#include<string.h>

struct Friends {

char name[250];

char pet\_name[250];

long int phone\_number;

};

struct Type {

char type\_of\_friend[250];

char name\_of\_common\_friends[250];

int places\_visited\_together;

struct Friends Fri;

};

int main() {

int n;

printf("Enter number of friends:");

scanf("%d",&n);

struct Type t[n];

for(int i=0;i<n;i++){

printf("\nEnter name : ");

scanf("%s", &t[i].Fri.name);

printf("\nEnter pet Name : ");

scanf("%s", t[i].Fri.pet\_name);

printf("\nEnter phone number : ");

scanf("%ld", &t[i].Fri.phone\_number);

printf("\nEnter Type of friend (School, College or Area friend) : ");

scanf("%s", t[i].type\_of\_friend);

printf("\nEnter name of common friends : ");

scanf("%s", t[i].name\_of\_common\_friends);

printf("\nEnter places visited together: ");

scanf("%d", &t[i].places\_visited\_together);

}

printf("s.no\tName\tpetname\tPhone number\tType of friend\tName of common friends\tNo.of places visited together\n");

for(int i=0;i<n;i++){

printf("%d\t%s\t%s\t%ld\t%s\t%s\t%d\n",

i + 1, t[i].Fri.name, t[i].Fri.pet\_name, t[i].Fri.phone\_number,

t[i].type\_of\_friend, t[i].name\_of\_common\_friends, t[i].places\_visited\_together);

}

return 0;

}

OUTPUT:

Enter number of friends:1

Enter name : ahill

Enter pet Name : ahill

Enter phone number : 8122675756

Enter Type of friend (School, College or Area friend) : college

Enter name of common friends : ahill

Enter places visited together: 5

s.no Name petname Phone number Type of friend Name of common friends No.of places visited together

1 ahill ahill 8122675756 college ahill 5

2. Implementation of Structures using Pointers (Create a structure named Product to

store details of the product like name, ID and price. Write a C program to input details

for at least 5 products, find the Total cost of all products, the most expensive and the

lowest priced product, and display their information.)

CODING:

#include<stdio.h>

#include<string.h>

struct product {

char name[200];

char id[10];

float price;

};

int main() {

int n;

printf("Enter number of products: ");

scanf("%d", &n);

struct product p[n];

float totalcost = 0;

struct product \*mostexpensive = &p[0];

struct product \*lowestpriced = &p[0];

for (int i = 0; i < n; i++) {

printf("Enter name: ");

scanf("%s", p[i].name);

printf("Enter Id: ");

scanf("%s", p[i].id);

printf("Enter price: ");

scanf("%f", &p[i].price);

totalcost += p[i].price;

if (p[i].price > mostexpensive->price) {

mostexpensive = &p[i];

}

if (p[i].price < lowestpriced->price) {

lowestpriced = &p[i];

}

}

printf("\nProduct details\n");

for (int i = 0; i < n; i++) {

printf("Product name: %s\n", p[i].name);

printf("Product ID: %s\n", p[i].id);

printf("Product price: %.2f\n", p[i].price);

}

printf("\nTotal cost of all products: %.2f\n", totalcost);

printf("\nMost Expensive Product:\n");

printf("Name: %s\n", mostexpensive->name);

printf("ID: %s\n", mostexpensive->id);

printf("Price: %.2f\n", mostexpensive->price);

printf("\nLowest Priced Product:\n");

printf("Name: %s\n", lowestpriced->name);

printf("ID: %s\n", lowestpriced->id);

printf("Price: %.2f\n", lowestpriced->price);

return 0;

}

OUTPUT:

Enter number of products: 2

Enter name: dell

Enter Id: A1234

Enter price: 67500

Enter name: lenovo

Enter Id: SA1234

Enter price: 120000

Product details

Product name: dell

Product ID: A1234

Product price: 67500.00

Product name: lenovo

Product ID: SA1234

Product price: 120000.00

Total cost of all products: 187500.00

Most Expensive Product:

Name: lenovo

ID: SA1234

Price: 120000.00

Lowest Priced Product:

Name: dell

ID: A1234

Price: 67500.00

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