

Computer Programing Lab

Assignment # 01 (Structs & Pointers):

Weight: 4.00

Due Date: 16-02-2018

Note: Using only “**Pointer Notations**” to solve these problems. Must read the file “**C++ Style Guidelines**” and apply it anywhere in you programs.

Question # 01 (Pointer Notations)

Create three dynamic arrays of **float** type having SIZE=5, initialize them with user input values. Construct another dynamic array "**testArray**" having SIZE=Sum of the sizes of above arrays. Compute the followings;

- Copy the values of above three arrays into "**testArray**".
- Find the Frequency of each element in "**testArray**" and display it on console.
- Search any value from "**testArray**".
- Add a new element into "**testArray**".
- Find 3rd minimum and 5th maximum from "**testArray**".
- Find power set of the "**testArray**" and display it on console.
- Swap the values of above three arrays in the order i.e. a=b, b=c and c=a.
- Find and print the "**common elements**" from above three arrays a, b and c.
- Find and print the "**repeated elements**" in any of the above three arrays a, b and c.

Question # 02

- A) Create a **struct** named as **nameType** having three members named **firstName**, **middleName** and **lastName** of type string. Write these functions within the struct and call them in main program for testing.
- Void Initialize ();
 - Void setValues(string f, string m, string l);
 - Void printNames();
- B) Create a **struct** named as **addressType** having five members named **address1**, **address2**, **city**, **state** and **zipcode** of type string. Write these functions within the struct and call them in main program for testing.
- Void Initialize ();
 - Void setAddress(string add1, string add2);
 - Void setCity(string c);
 - Void setState(string s);
 - Void setZipcode(string z);

- Void printAddress();
- C) Create a **struct** named as **student** having three members of struct types declared above.
- D) Create an array of pointers of type **student** in main program, assign them proper addresses, initialize the data into them and print all values on console.

```
Struct student {
    Int id;
    nameType name;
    addressType address;
}
```

Question # 03

Design a struct that stores all the information about an employee. Name of the Struct should be "**Employee_Struct**" i.e. employee first name, last name, father name, emp_number, blood group, emp_age, factory name, department, phone number, email address, home address, salaries of previous four years (array of type string/double with size=4) .

Write code that declares an array of instances (variables) of this struct in **main** program and fills up all the input data from a file given below.

- Write a function "swap" having two parameters of type "**Employee_Struct**" to swap all the values in struct variables and call it in main program?
- Update all the salaries (S1-to-S4) of each employee with an increment of 5k respectively and write the updated data in an output file.
- Sort all employee data in ascending order of age and print it on console.

F_Name	L_Name	Fther_N	E_N	B_G	Age	F_N	DP	Ph	Email	HA	s1	s2	s3	s4
Ahmad	Hussain	Axel	10	B+	26	FF	Testing	123	ABC	P1	20k	30k	40k	50k
Eyal	John	Baren	101	A+	28	FF	Networks	234	DEF	P2	10k	20k	30k	40k
Moshe	Neyr	Barry	01	O+	29	FF	Security	345	GHI	P5	20k	30k	40k	50k
Bla	Casper	Axel	03	B-	35	FF	Design	456	JKL	P7	30k	40k	50k	60k
Hoda	Claude	Baren	05	B+	30	FF	Security	678	MNO	P3	50k	60k	70k	80k
et188	Crew	Barry	09	A+	33	FF	Testing	789	PQR	P4	60k	70k	80k	90k
Steven	Chester	Axel	13	A-	22	FF	Networks	987	STU	P1	30k	30k	30k	30k
Abel	Clive	Baren	19	O+	23	FF	Design	876	VWX	P1	50k	40k	40k	45k
Abraham	Basil	Barry	20	AB+	28	FF	Design	765	XYZ	P3	40k	50k	60k	60k

Good Luck ☺