

CS308 C Language Laboratory

Lab Activity 5 (v.s.2022)

Refer to: “User defined types II” in Canvas

Points: 10

Submission: See Canvas for due date!

Instruction: Write a C program that contains a structure that uses predefined types and union.

- Create a struct person with `name`, `age`, `kindOfPerson`
- `kindOfPerson` will help you remember what was created, either `child`, `student`, or `adult`. Make it *enum* type.
- For each type of person have the following fields:
 - **Child**-ren have a `school` field of type string.
 - **Student**-s have fields `college` and `gpa` of type string and float respectively
 - **Adult**-s have `company` and `salary` fields, types string and float respectively
- Allocate a non-dynamic struct with the content for a **college Student** and initialize it to: "Willie", 20, K-State, 3.5
- Dynamically allocate a struct for a **Child** and initialize it to: "Alison", 10, "Amanda Arnold Elementary"
- Dynamically allocate a struct for an **Adult** and initialize it to: "Bob", 35, "BestBuy", and \$45,000 in salary
- Implement a function to display the content of a *struct person* with the following signature: ***void display(Person* p)***
- Using only pointer notation, print out the three people info using the *display()* function
- Free up the memory allocated before exiting
- Rename data types created with “`struct`”, “`union`”, and “`enum`” using the `typedef` keyword, that is, create single-word nick name for each datatype you create.

Rubric:

Requirements	Points
Correct program implementation (structure, union, function, allocation and free of memory)	4
Correctness of program execution (all instructor's test cases pass)	4
Correct output format	2
Total	10