HW03 – Class Constructors, Inheritance & Init [100 pts]

a. Create a date class with attributes of month, day, and year.
b. Create an employee class for storing information related to employee information for the CS1C Corporation. This class should contain the employee's name, employee's Id, phone number, age, gender, job title, salary, and hire date.
    1. You should write a series of member functions that change the employee's name, employee's Id, phone number, age, job title, salary, and hire date.
    2. You should use your date class (composition) when accessing hire date.
    3. You should write a print function that prints all information related to an employee.
    4. You should write a client to test **all** your member functions. Print the **before and after** when testing your change functions. You should write at least two different constructors (default and non-default).

c. Create the following classes:
    1. Programmer class that is derived from the employee class with the following private data members
        i. Department number
        ii. Supervisor's name
        iii. Percentage of last salary increase
        iv. A C++ identifier (true if the employee knows C++)
        v. A Java identifier (true if the employee knows Java)
    2. Software architect class that is derived from the employee class with the following private data members
        i. Department number
        ii. Supervisor's name

   iii. Percentage of last salary increase
   iv. Years of experience designing software projects
3. You should write at least two different constructors (default and non-default) for the classes above.
4. You should write a series of member functions that change the private data members of the derived classes.
5. You should write a print function that prints all information related to the Programmer class and the Software architect class.
6. You should write a client to test **all** your member functions. Print the **before and after** when testing your change functions.

One should be able to follow your output without looking at your source code.

Data:
C1SCEmployees

Name	Employee's Id	Phone	Age	Gender	Job title	Salary	Hire Date
Jimmy Fallon	12345	949-555-1234	40	M	Comedian	$100,000	8/31/2014
Stephan Colbert	12346	310-555-5555	51	M	Comedian	$70,123	05/08/2015
James Corden	87654	703-703-1234	37	M	Talk Show Host	$900,000	12/25/2014
Katie Couric	77777	203-555-6789	58	F	News reporter	$500,500	03/01/2005

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Programmers

Name	Employee's Id	Phone	Age	Gender	Job title	Salary	Hire Date
Sam Software	54321	819-123-4567	21	M	Programmer	$223,000	12/24/2011
Mary Coder	65432	310-555-5555	28	F	Programmer	$770,123	02/08/2010

Name	Department	Supervisor's Name	Raise %	C++ Knowledge	Java Knowledge
Sam Software	5432122	Joe Boss	4	Yes	No
Mary Coder	6543222	Mary Leader	7	Yes	Yes

Software Architects

Name	Employee's Id	Phone	Age	Gender	Job title	Salary	Hire Date
Alex Arch	88888	819-123-4444	31	M	Architect	$323,000	12/24/2009
Sally Designer	87878	310-555-8888	38	F	Architect	$870,123	02/08/2003

Name	Department	Supervisor's Name	Raise %	Years of experience
Alex Arch	5434222	Big Boss	5	4
Sally Designer	6543422	Big Boss	8	11

In your client,

1. Create at least one "employee" object with the default constructor
2. Create at least one "employee" object with the non-default constructor
3. Create at least one "programmer" object with the default constructor
4. Create at least one "programmer" object with the non-default constructor
5. Create at least one "software architect" object with the default constructor

6. Create at least one "software architect" object with the non-default constructor
7. Write code to test changing the data members of a CS1Cemployee
8. Write code to test changing the data members of a Programmer class
9. Write code to test changing the data members of a Software Architect class

Use the command script to capture your interaction compiling and running the program, including all operations, as shown below:

CS1C Spring 2023 TTH HW03 100pts **Due: Th 2/2/2023**

cs1c@cs1c-VirtualBox ~/cs1c/hw/03 $ script hw03.scr
Script started, file is hw03.scr
cs1c@cs1c-VirtualBox ~/cs1c/hw/03 $ date
…
cs1c@cs1c-VirtualBox ~/cs1c/hw/03 $ ls -l
…
cs1c@cs1c-VirtualBox ~/cs1c/hw/03 $ make all
…
cs1c@cs1c-VirtualBox ~/cs1c/hw/03 $ ls -l
…
cs1c@cs1c-VirtualBox ~/cs1c/hw/03 $ ./hw03

… // print out employee, programmer, architect objs instantiated via default & alternate constructors
… // print out employee, programmer, architect objs both **before and after** changing class data via testing code

cs1c@cs1c-VirtualBox ~/cs1c/hw/03 $ exit
Script done, file is hw03.scr

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cs1c@cs1c-VirtualBox ~/cs1c/hw/03 $ make tar

...

Submit the tar package file hw03.tar by Thursday February 2, 2023.