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| **American University of Sharjah**  **College of Engineering**  Dept of Computer Science & Engg  P. O. Box 26666  Sharjah, UAE | A picture containing logo  Description automatically generated | **Instructors:** Dr. Aliaa Moualla  **Lab Instructor:** Sameer Alawnah  **Office:** EB1-0012C  **Phone**: 971-6-515-4940  **e-mail**: salawnah@aus.edu  **Semester**: Spring 2024 |

**CMP 220L - Programming II**

**Lab #5 –Classes**

**Note: using ChatGPT will be considered a violation of the AUS integrity code.**

**Objectives:**

* To practice classes.

Using Visual Studio 2022, write the below programs, compile and provide screenshots of output.

Note: you are required to submit copy of the code + screenshots of program run for each exercise.

**Exercise #1**

Develop a class call Company that has the following private variables:

* id of type int.
* name of type string.
* info of type string

Your class should have the following public functions:

* Default constructor, this function should initialize all numeric members to 0 and string members to an empty string.
* Constructor with parameters, in which the parameters should be passed in this order: id, name, and info.
* Print function to print the objects’ information, this function should takes no inputs and should return no output, the function name should be printObj.
* Getters functions namely: getID, getName and getInfo
* Setters functions namely: setID, setName and setInfo

Test your class with the following main to get the expected given output:

int main()

{

int id = 1;

string name = "Hello Comp. LTD";

string info = "Address: Sharjah, UAE, Phone: 0622233300";

cout<<"Testing Default Constructor : "<<endl;

Company comp1;

cout<<"Company 1 :\n";

comp1.printObj();

cout<<"Testing Constructor With Parameters : "<<endl;

Company comp2(id,name,info);

cout<<"Company 2 :\n";

comp2.printObj();

cout<<"Testing The Setters, Changing Comp1 members :"<<endl;

comp1.setID(id);

comp1.setName(name);

comp1.setInfo(info);

cout<<"Testing The Getters : \n";

cout<<"Comp1 ID is : "<<comp1.getID()<<endl;

cout<<"Comp1 Name is : "<<comp1.getName()<<endl;

cout<<"Comp1 Info is : "<<comp1.getInfo()<<endl;

}

Expected output:

**Testing Default Constructor :**

**Company 1 :**

**Company ID : 0**

**Company Name :**

**Company Info :**

**Testing Constructor With Parameters :**

**Company 2 :**

**Company ID : 1**

**Company Name : Hello Comp. LTD**

**Company Info : Address: Sharjah, UAE, Phone: 0622233300**

**Testing The Setters, Changing Comp1 members :**

**Testing The Getters :**

**Comp1 ID is : 1**

**Comp1 Name is : Hello Comp. LTD**

**Comp1 Info is : Address: Sharjah, UAE, Phone: 0622233300**

#include <iostream>

#include <string>

**using** **namespace** std;

**class** Company {

**public**:

Company()

{

id = 0;

name = " ";

info = " ";

};

Company(**int** \_id, string \_name, string \_info)

{

id = \_id;

name = \_name;

info = \_info;

}

**void** printObj()

{

cout <<"Company ID: " << id << endl;

cout <<"Company Name: " << name << endl;

cout <<"Compay info: " << info << endl;

}

**void** setId(**int** \_id)

{

id = \_id;

}

**void** setName(string \_name)

{

name = \_name;

}

**void** setInfo(string \_info)

{

info = \_info;

}

**int** getId(){

**return** id;

}

string getName(){

**return** name;

}

string getInfo(){

**return** info;

}

**private**:

string name;

**int** id;

string info;

};

**int** main()

{

**int** id = 1;

string name = "Hello Comp. LTD";

string info = "Address: Sharjah, UAE, Phone: 0622233300";

cout<<"Testing Default Constructor : "<<endl;

Company comp1;

cout<<"Company 1 :\n";

comp1.printObj();

cout<<"Testing Constructor With Parameters : "<<endl;

Company comp2(id,name,info);

cout<<"Company 2 :\n";

comp2.printObj();

cout<<"Testing The Setters, Changing Comp1 members :"<<endl;

comp1.setId(id);

comp1.setName(name);

comp1.setInfo(info);

cout<<"Testing The Getters : \n";

cout<<"Comp1 ID is : "<<comp1.getId()<<endl;

cout<<"Comp1 Name is : "<<comp1.getName()<<endl;

cout<<"Comp1 Info is : "<<comp1.getInfo()<<endl;

}

