CS3201: OBJECT ORIENTED PROGRAMMING LABORATORY

Topic: Namespaces

Lab: 09   **Date: 17/05/2024**

OBSERVATION

1. What is the use of namespace?

2. Predict the output

```cpp
#include <iostream>
using namespace std;
namespace Box1
{
    int a = 4;
}
namespace Box2
{
    int a = 13;
}
int main ()
{
    int a = 16;
    Box1::a;
    Box2::a;
    cout << a;
    return 0;
}
```

3. Which keyword is used to access the variable in the namespace?

4. Identify the correct statement.

    a) Namespace is used to group class, objects and functions

    b) Namespace is used to mark the beginning of the program

    c) A namespace is used to separate the class, objects

    d) Namespace is used to mark the beginning & end of the program

5. State 2 real life scenarios in which you would have to use namespaces

EXECUTION QUESTIONS

1. Create a C++ namespace `Geometry` with functions to calculate the area and perimeter of various geometric shapes such as circle, rectangle, and triangle. Use function overloading to handle different shapes. Additionally, implement a nested namespace `ThreeD` to handle calculations for three-dimensional shapes like cube, sphere, and cylinder.

2. Design a C++ namespace `Company` to represent employee and department information. Inside the namespace, define classes for `Employee`, `Department`, and `Company`. Implement functions to add employees to departments, calculate department-wise total salaries, and find the highest paid employee.

3. Implement a C++ namespace `Banking` to represent banking operations. Inside the namespace, define classes for `Account`, `SavingsAccount`, and `CheckingAccount`. Each class should have member functions to deposit, withdraw, and get balance. Additionally, implement a namespace function to calculate compound interest for a given period.