Report on Types of Inheritance

**Single Inheritance:**

In single inheritance, **private** data members and member functions of base and derived class cannot be accessed outside their respective classes.

**Protected** members and functions of base class can be accessed by derived class within the class but cannot be vice versa. The object of derived class cannot access the protected members and functions of any class within the main.

Whereas, **public** members and functions of both(base and derived) classes can be accessed in the **main function** with the object of the derived class and they can also be accessed within the derived class but cannot be vice versa.

**Multiple Inheritance:**

In single inheritance, **private** data members and member functions of base, derived & sub-derived class cannot be accessed outside their respective classes.

**Protected** members and functions of base classes can be accessed by derived class within the class but cannot be vice versa. The object of derived class cannot access the protected members and functions of any class within the main.

Whereas, **public** members and functions of base classes and derived class can be accessed in the **main function** with the object of the derived class and they can also be accessed within the derived class but cannot be vice versa.

**Multilevel Inheritance:**

In single inheritance, **private** data members and member functions of base, derived & sub-derived class cannot be accessed outside their respective classes.

**Protected** members and functions of base class can be accessed by derived class within class and sub-derived class can access the **protected** members and functions of both the classes (base and derived) within the class but cannot be vice versa. The object of sub-derived class cannot access the protected members and functions of any class within the main.

Whereas, **public** members and functions of base class and derived class can be accessed in the **main function** with the object of the derived class and they can also be accessed within the derived class (of its base class) and sub-derived class (of all base classes) but cannot be vice versa.

**Hybrid Inheritance:**

In single inheritance, **private** data members and member functions of base, derived & sun-derived class cannot be accessed outside their respective classes.

**Protected** members and functions of base classes can be accessed by derived class within the class and further the sub-derived class can access the protected members and functions of all of his parent classes but cannot be vice versa. The object of sub-derived class cannot access the protected members and functions of any class within the main.

Whereas, **public** members and functions of base classes and derived class can be accessed in the **main function** with the object of the derived class and they can also be accessed within the derived class (of its parent class) and sub-derived (of all the parent classes) class but cannot be vice versa.