**C++ Vectors Practice Exercise**

Assume **using namespace std;** is being used:

**Instructions:** Fill in the blanks with the appropriate terms or code snippets related to C++ vectors. Use the hints provided to help you complete each statement.

**Statement:** In C++, a **vector** is a dynamic array that can hold a collection of elements of the same data type.

**Hint:** To use vectors in C++, you need to include the **vector** header file.

**Statement:** To declare a vector of integers, you use the following syntax: **vector<int> myVector;**

**Hint:** This is the keyword used to specify the data type of the elements that the vector will hold.

**Statement:** To initialize a vector of integers with specific values, you can use the following syntax: **vector<int> myVector = {1, 2, 3, 4, 5};**

**Statement:** You can add an element to the end of a vector using the **push\_back** function.

**Hint:** This function is used to add elements to the end of a vector

**Statement:** You can determine the size of a vector using the **size** function.

**Hint:** This function is used to retrieve the number of elements in a vector.

**Statement:** You can access the element at a specific index in a vector using the **at** function.

**Hint:** This function is used to access the element at a specific index in a vector.

**Statement:** You can remove the last element from a vector using the **pop\_back** function.

**Hint:** This function is used to remove the last element from a vector.

**Statement:** You can clear all elements from a vector using the **clear** function.

**Hint:** This function is used to clear all elements from a vector.

**Statement:** You can check if a vector is empty using the **empty** function.

**Hint:** This function is used to check if a vector is empty.

**Statement:** You can sort the elements in a vector in ascending order using the **sort** function.

**Hint:** This function is used to sort the elements in a vector in ascending order

**Statement:** You can find the minimum element in a vector using the **min\_element** function.

**Hint:** This function is used to find the minimum element in a vector

**Statement:** You can find the maximum element in a vector using the **max\_element** function.

**Hint:** This function is used to find the maximum element in a vector.

**C++ Classes Practice Exercise**

**Instructions:** Fill in the blanks with the appropriate terms or code snippets related to C++ classes. Use the hints provided to help you complete each statement.

**Statement:** In C++, a class is a user-defined **data type** that groups data members and member functions into a single unit.

**Hint:** A data type is the type of data a variable can hold

**Statement:** To declare a class in C++, you use the keyword **class** followed by the name of the class.

**Hint:** This keyword is used to declare a class in C++ and is often placed before the class declaration.

**Statement:** The **data** section of a class contains data members.

**Hint:** A function inside a class is called a **method**.

**Statement:** A member function inside a class is often referred to as a **method**.

**Hint:** A function inside a class is called a **method**.

**Statement:** To define a member function outside the class declaration, you use the class name followed by the scope resolution operator (::) and the keyword **class**.

**Hint:** This keyword is used to define a member function outside the class declaration.

**Statement:** To create an instance of a class (an object), you use the class name followed by the object name and the keyword **new**.

**Hint:** This keyword is used to create an instance of a class, which is an object.

**Statement:** The **constructor** function is used to initialize the object's data members when an object is created.

**Hint:** This member function is automatically called when an object is created, and it is used to initialize the object's data members.

**Statement:** To access the data members or member functions of an object, you use the object name followed by the dot operator (.) or the arrow operator (->) if the object is a **pointer**.

**Hint:** This keyword is used to access the data members and member functions of an object.

**Statement:** In C++, access specifiers such as **private**, **public**, and **protected** control the visibility and accessibility of class members within the class itself and derived classes.

**Hint:** In object-oriented programming, access specifiers such as **private**, **public**, and **protected** define the visibility of class members

**Statement:** **Encapsulation** is a fundamental concept in C++ that combines data and methods within a class and controls the access to data members through access specifiers.

**Hint:** Encapsulation helps protect the internal state of an object and ensures that data is accessed in a controlled manner.

Classes Multiple Choice:

**C++ Classes Worksheet - Multiple Choice**

**Instructions:** Choose the correct option (A, B, C, or D) to fill in the blanks.

1. A C++ class is a \_\_\_\_\_\_\_\_\_\_\_ data type that can have data members and member functions. A) built-in B) user-defined C) standard D) dynamic
2. The data members of a class are also known as \_\_\_\_\_\_\_\_\_\_\_. A) objects B) attributes C) methods D) constructors
3. A class is a blueprint, while an \_\_\_\_\_\_\_\_\_\_\_ is an instance of that blueprint. A) operator B) constructor C) object D) method
4. The access specifier **private** indicates that class members are only accessible from within the \_\_\_\_\_\_\_\_\_\_\_ itself. A) class B) function C) object D) namespace
5. A \_\_\_\_\_\_\_\_\_\_\_ is a special member function with the same name as the class, used to initialize the object's data members. A) constructor B) destructor C) operator D) method
6. Member functions defined inside a class can access the \_\_\_\_\_\_\_\_\_\_\_ members of that class. A) private B) public C) protected D) static
7. The \_\_\_\_\_\_\_\_\_\_\_ operator is used to access the data members and member functions of a class object. A) dot B) comma C) semicolon D) asterisk
8. A \_\_\_\_\_\_\_\_\_\_\_ function is a member function that returns the value of a private data member. A) constructor B) accessor C) destructor D) operator
9. To create an object of a class, you use the \_\_\_\_\_\_\_\_\_\_\_ keyword, followed by the class name. A) this B) static C) new D) const
10. \_\_\_\_\_\_\_\_\_\_\_ functions are used to perform operations on the data members of a class. A) friend B) constructor C) accessor D) member

**Answers:**

1. B) user-defined
2. B) attributes
3. C) object
4. A) class
5. A) constructor
6. A) private
7. A) dot
8. B) accessor
9. C) new
10. D) member

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