Rami Wail Shoula: Examination System (Run Manual)

I- Object-Oriented Data Structures in C++ (Coursera) Questions

I used the questions from this coursera course as reference (No. representing each of my questions and their source):

1

Week 1 Quiz

Latest Submission Grade 100%

1. One of these statements below is true and the other three are false. Which one is true?

- (●) Every variable in C++ has to be associated with a specific type
- ( ) Every variable in C++ holds either an integer, a character, a Boolean or a floating point value (of some precision).
- ( ) A Boolean variable can only be assigned a value from this set of three reserved words: {true, false, undefined}.
- ( ) Every function in C++ must return a value.

✓ **Correct**
C++ is "strongly typed" which means that the type of every variable is assigned when the variable is declared, and the type of a variable cannot change once the variable is declared.

2

2. According to the C++ standard, what is the name of the function is the starting point for a program?

- ○ start()
- ○ init()
- ○ begin()
- ◉ main()

Correct
When you write a C++ program, the program begins when the operating system calls the function "main()."

3,5,6,7,8

Week 4 Quiz

Latest Submission Grade 100%

1. Which one of the following is NOT true?

- ○ C++ allows a member variable to be declared in a user-defined class with an unknown type that can by defined when an object of that class is created.
- ○ C++ allows a variable to be declared in a user-defined function with an unknown type that can be defined when the function is called.
- ◉ C++ allows a local variable to be declared in main() with an unknown type that can be defined when the program is executed.
- ○ C++ allows a variable to be declared in a user-defined member function of a user-defined class that can be defined when the function is called.

Correct
Even though C++ allows functions and classes to use templated types that are defined when the function is called or an object of that class is created, every variable must have a type known at compile time.

3. Which of the following will generate an error at compile time?

- (●) std::vector v;
- ( ) std::vector<double> v;
- ( ) std::vector<char[256]> v;
- ( ) std::vector<std::vector<int>> v;

Correct
This will generate a compile-time error because the compiler does not know what type should be used for the elements of the std::vector, and every variable (including v) has to have a type at compile time. You have to supply a type as the template parameter for the elements of the std::vector.

9

6. Which one of the following properly declares the class RubikCube derived from the base class Cube?

- ( ) class Cube : public RubikCube {...};
- (●) class RubikCube : public Cube {...};
- ( ) class RubikCube(Cube) {...};
- ( ) class Cube(RubikCube) {...};

Correct
This correctly derives RubikCube as a specialization of base class Cube.

10

10. C++ is ...

- ◉ ... a great language for programming data structures.
- ○ ... the greatest language for programming data structures ever!
- ○ ... meh.

✓ **Correct**

II- Program Run (Final Exam)

```
Welcome to my exam system :), Please Enter 1 to take the Final Exam, or 2 to take the Practice Exam: 1
You have selected: Final Exam: (press enter to confirm)
Object-Oriented Data Structures in C++ (Coursera) Exam  31-Dec-21 8:49:06 AM
Number of Questions:10
Q1 Choose 1: One of these statements below is true and the other two are false. Which one is true ?     Marks:5
Choose One:
0.Every variable in C++ has to be associated with a specific type.
1.A Boolean variable can only be assigned a value from this set of three reserved words: { true, false, undefined}.
2.Every function in C++ must return a value.

Q2 Choose 1: According to the C++ standard, what is the name of the function that is the starting point for a program?
        Marks:5
Choose One:
0.start()
1.init()
2.begin()
3.main()

Q3 Select all of the following that are true?   Marks:3
Choose all the correct answers:
0.C++ allows a member variable to be declared in a user-defined class with an unknown type that can by defined when an object of that class is created.
1.C++ allows a variable to be declared in a user-defined function with an unknown type that can be defined when the function is called.
2.C++ allows a local variable to be declared in main() with an unknown type that can be defined when the program is executed.
3.C++ allows a variable to be declared in a user-defined member function of a user-defined class that can be defined when the function is called.

Q4 Select all of the following that will not generate an error at compile time? Marks:3
Choose all the correct answers:
0.std::vector v;
1.std::vector<double> v;
2.std::vector<char[256]> v;
3.std::vector<std::vector<int>> v;

Q5 True/False: C++ allows a member variable to be declared in a user-defined class with an unknown type that can by defined when an object of that class is created?    Marks:7
Choose True or False:
0.true
1.false

Q6 True/False: C++ allows a variable to be declared in a user-defined function with an unknown type that can be defined when the function is called?    Marks:7
Choose True or False:
0.true
1.false

Q7 True/False: C++ allows a local variable to be declared in main() with an unknown type that can be defined when the program is executed?      Marks:7
Choose True or False:
0.true
1.false

Q8 True/False: C++ allows a variable to be declared in a user-defined member function of a user-defined class that can be defined when the function is called?  Marks:7
Choose True or False:
0.true
1.false

Q9 Choose 1: Which one of the following properly declares the class RubikCube derived from the base class Cube? Marks:5
Choose One:
0.class Cube : public RubikCube {...};
1.class RubikCube : public Cube {...};
2.class RubikCube(Cube) {...};
3.class Cube(RubikCube) {...};
```

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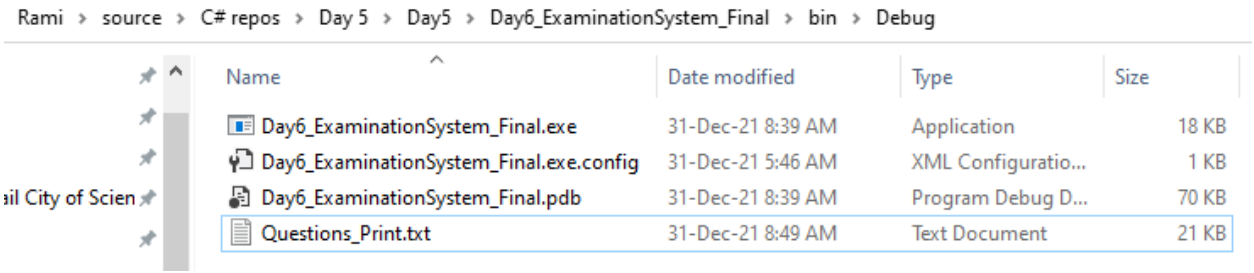
Q10 Choose 1: C++ is ...?       Marks:5
Choose One:
0.... a great language for programming data structures.
1.... the greatest language for programming data structures ever!
2.... meh.

Exam Finished?
Subject Object-Oriented Data Structures in C++ (Coursera) Exam Finished
Press any key to continue . . .
```

The Final Exam is like a printed exam (that is also printed (i.e. saved) to the external file "Questions_Print.txt" That is generated in the bin -> Debug after the run.



III- Program Run (Practice Exam)

```
Welcome to my exam system :), Please Enter 1 to take the Final Exam, or 2 to take the Practice Exam: 2
You have selected: Practice Exam: (press enter to confirm)
Object-Oriented Data Structures in C++ (Coursera) Exam  31-Dec-21 8:39:32 AM
Number of Questions:10
Q1 Choose 1: One of these statements below is true and the other two are false. Which one is true ?     Marks:5
Choose One:
0.Every variable in C++ has to be associated with a specific type.
1.A Boolean variable can only be assigned a value from this set of three reserved words: { true, false, undefined}.
2.Every function in C++ must return a value.
Answer Index: 0
Correct Answer Index: 0

Q2 Choose 1: According to the C++ standard, what is the name of the function that is the starting point for a program?  Marks:5
Choose One:
0.start()
1.init()
2.begin()
3.main()
Answer Index: 3
Correct Answer Index: 3

Q3 Select all of the following that are true?   Marks:3
Choose all the correct answers:
0.C++ allows a member variable to be declared in a user-defined class with an unknown type that can by defined when an object of that class is created.
1.C++ allows a variable to be declared in a user-defined function with an unknown type that can be defined when the function is called.
2.C++ allows a local variable to be declared in main() with an unknown type that can be defined when the program is executed.
3.C++ allows a variable to be declared in a user-defined member function of a user-defined class that can be defined when the function is called.
Answer Index: enter answer index
0
enter answer index
1
enter answer index
3
Correct Answer Index: 0 1 3

Q4 Select all of the following that will not generate an error at compile time? Marks:3
Choose all the correct answers:
0.std::vector v;
1.std::vector<double> v;
2.std::vector<char[256]> v;
3.std::vector<std::vector<int>> v;
Answer Index: enter answer index
2
enter answer index
3
enter answer index
0
Correct Answer Index: 1 2 3

Q5 True/False: C++ allows a member variable to be declared in a user-defined class with an unknown type that can by defined when an object of that class is created?    Marks:7
Choose True or False:
0.true
1.false
Answer Index: 0
Correct Answer Index: 0

Q6 True/False: C++ allows a variable to be declared in a user-defined function with an unknown type that can be defined when the function is called?    Marks:7
Choose True or False:
0.true
1.false
Answer Index: 1
Correct Answer Index: 0
```

```
Q7 True/False: C++ allows a local variable to be declared in main() with an unknown type that can be defined when the program is executed?      Marks:7
Choose True or False:
0.true
1.false
Answer Index: 1
Correct Answer Index: 1

Q8 True/False: C++ allows a variable to be declared in a user-defined member function of a user-defined class that can be defined when the function is called?  Marks:7
Choose True or False:
0.true
1.false
Answer Index: 0
Correct Answer Index: 0

Q9 Choose 1: Which one of the following properly declares the class RubikCube derived from the base class Cube? Marks:5
Choose One:
0.class Cube : public RubikCube {...};
1.class RubikCube : public Cube {...};
2.class RubikCube(Cube) {...};
3.class Cube(RubikCube) {...};
Answer Index: 1
Correct Answer Index: 1

Q10 Choose 1: C++ is ...?       Marks:5
Choose One:
0.... a great language for programming data structures.
1.... the greatest language for programming data structures ever!
2.... meh.
Answer Index: 0
Correct Answer Index: 0

you scored: 46 out of 54
Exam Finished?
```

In this case, I got 1 wrong in Q4 (-1 mark), Q6 wrong (-7 marks).

So a total of -8 marks ;

Validating the 46 out of 54 final grade in this case (- 8 marks total).

I checked the grading system and it is correct for all cases.

I also checked and rechecked the questions and answers to make sure that they are correct (data structure exam) as per the screenshots I took from coursera course…

However, in some cases, I rephrased the questions.

IV- Questions_Print.txt files

I generated to "Questions_Print.txt" files, one for the case of the final exam and one for my Practice exam demo.

I renamed them "Questions_Print_Final.txt" & "Questions_Print_Practice.txt", respectively and uploaded them with the submission. If the txt file is cleared be4 the run it generates the same output (just the questions and answers as shown below:

```
Choose 1: One of these statements below is true and the other two are false. Which one is true ?       Marks: 5
Choose One:
0.Every variable in C++ has to be associated with a specific type.
1.A Boolean variable can only be assigned a value from this set of three reserved words: { true, false, undefined}.
2.Every function in C++ must return a value.

Choose 1: According to the C++ standard, what is the name of the function that is the starting point for a program?     Marks: 5
Choose One:
0.start()
1.init()
2.begin()
3.main()

Select all of the following that are true?      Marks: 3
Choose all the correct answers:
0.C++ allows a member variable to be declared in a user-defined class with an unknown type that can by defined when an object of that class is created.
1.C++ allows a variable to be declared in a user-defined function with an unknown type that can be defined when the function is called.
2.C++ allows a local variable to be declared in main() with an unknown type that can be defined when the program is executed.
3.C++ allows a variable to be declared in a user-defined member function of a user-defined class that can be defined when the function is called.

Select all of the following that will not generate an error at compile time?    Marks: 3
Choose all the correct answers:
0.std::vector v;
1.std::vector<double> v;
2.std::vector<char[256]> v;
3.std::vector<std::vector<int>> v;
```

When rerun, the file is overwritten (this can be used as a count of how many times the exam was taken xd so I didn't look into changing this behavior bec. a means to find out how many times the code is run is exciting to me as it is like a fingerprint that the runs leave after run ^^. Btw. the default size of the file is 2.57 KB and increases with each run.

This manual is just for validation that all functionality required executed correctly.

Rami Wail Shoula