VB notes P4:

OOP:

Variables inside class: attributes

Functions/Procedures inside class: methods

Class containing both variables(attributes) and functions/Procedures (methods) is called encapsulation.

In main when a variable of type class is declared, it is called an object

Public: the variables and functions that can be used in the class or outside the class or anywhere. Child, grandchild, main, other procedures, and functions, everyone can use.

Example:

Class A

Public name

End Class

Class B: Inherits A

Public age

End Class

Just to make you understand:

Reality of what B looks like:

Class B

Public name

Public age

End Class

Class B inherits name perfectly fine as name is public

Sub main()

Dim Book as New B

Console.writeline(Book.name && Book.age) ‘Works perfectly fine

End Sub

Private: These variables and functions can only be used inside the class. But outside the class they can’t be accessed. Even child classes cant use them, main cant use them

Class A

Private name

End Class

Class B: Inherits A

Public age

End Class

Just to make you understand:

Reality of what B looks like:

Class B

Public age

End Class

Class B can’t inherit name as name is private. Only A can use name

Sub main()

Dim Book as New B

Console.writeline(Book.name) ‘Gives error as name is a private attribute

End Sub

Maybe this is part of syllabus, maybe not:

Protected: These variables and functions cannot be used directly in main. But they can be used by a child class (but not grandchild class).

Class A

Protected name

End Class

Class B: Inherits A

Public age

End Class

Class C: Inherits B

Public Date

End Class

Just to make you understand:

Reality of what B looks like:

Class B

Public age

Private name

End Class

Just to make you understand:

Reality of what C looks like:

Class B

Public age

Public date

End Class

Class C can’t inherit name as name is protected in A, hence it is private in B. Only class A and class B can use name

Sub main()

Dim Book as New C

Console.writeline(Book.name) ‘Gives error, as name is a protected attribute in class A

End Sub

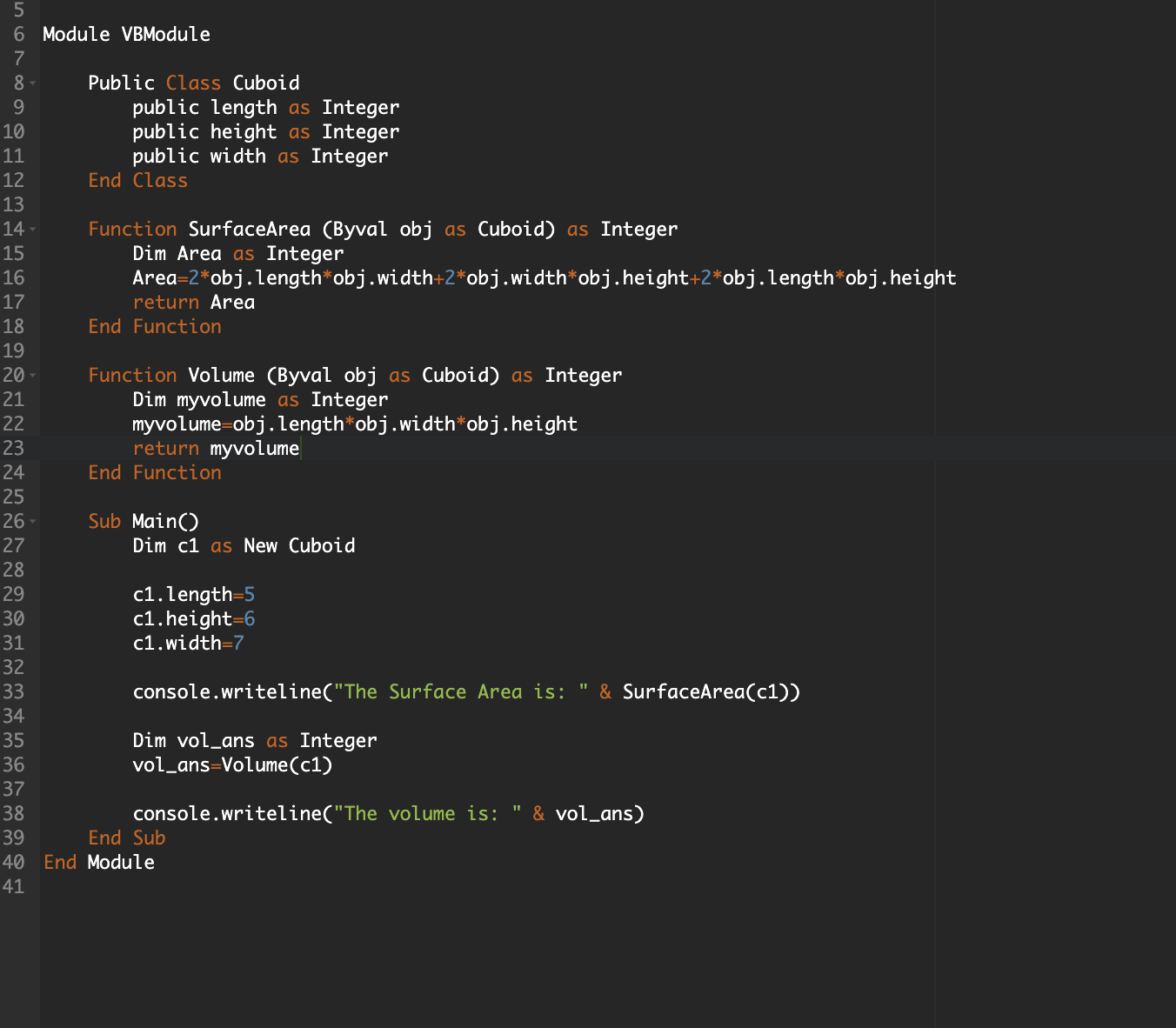
Class A:

Public name

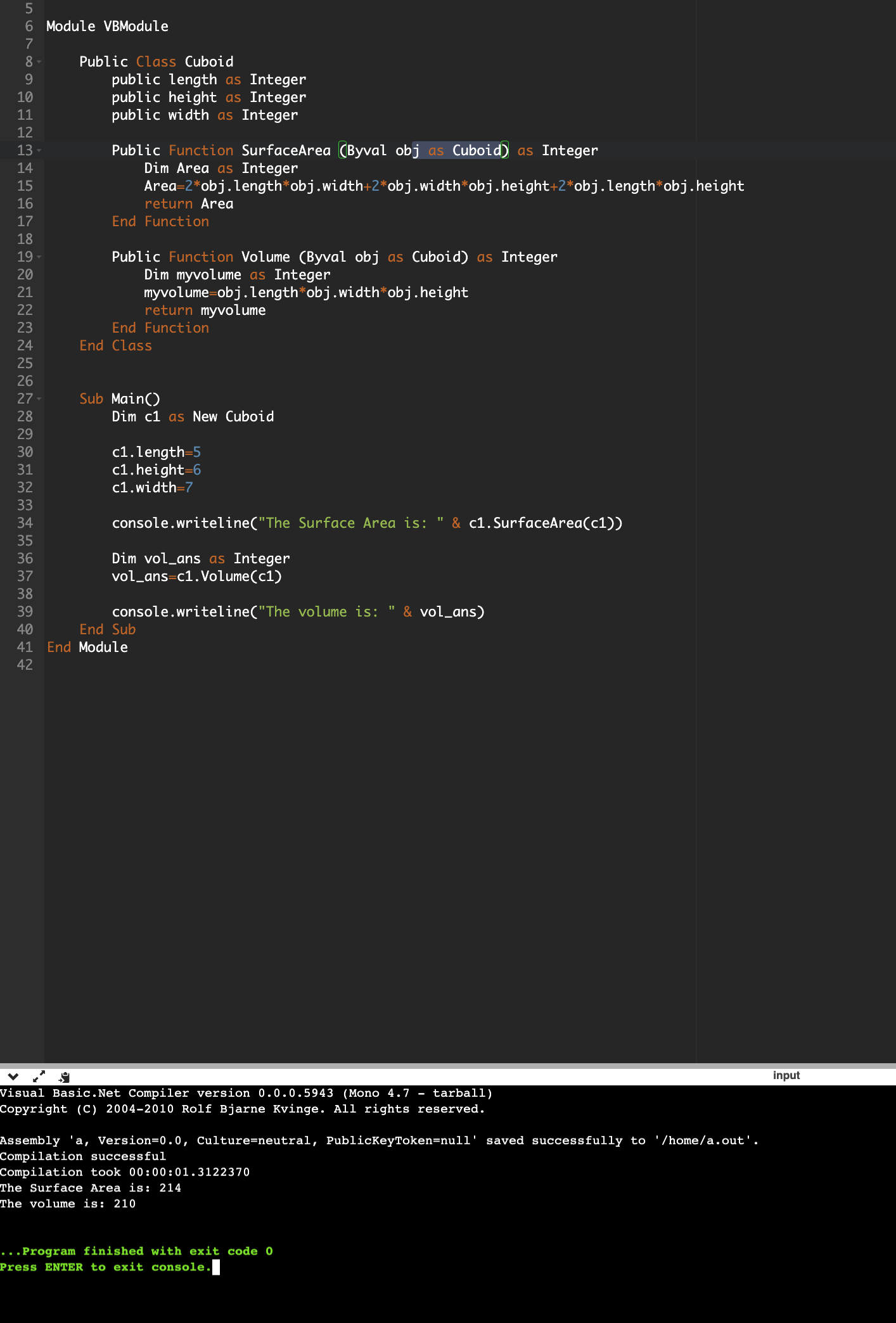
Class

Methods:

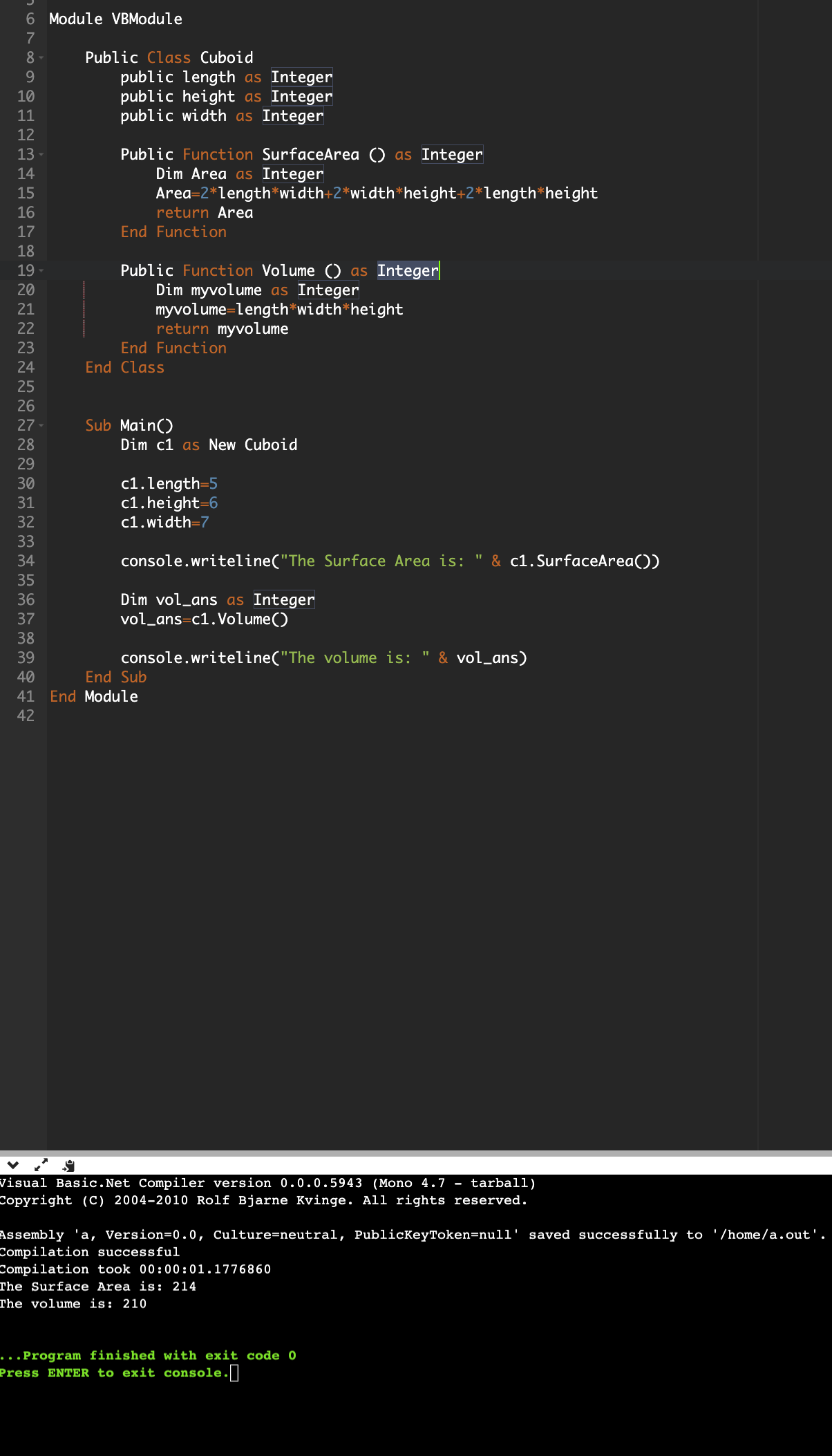
Functions outside the class (no methods)



Functions brought inside the class (methods): though this is not good practice



Next step: Best practice and you don’t have to do c1 a lot of times like “c1.SurfaceArea(c1)”



Constructors: A type of function/Procedure (method) inside the class that:

When you make an object (class variable). A constructor runs immediately.

A constructor runs at the start of the lifetime of an object basically

A constructor can be used to declare the object and initialize the attributes of the object.

So instead of

c1.length=5

c1.height=6

c1.width=7

to initialise

we can do

Dim c1 as New Cuboid(5,6,7)

You can find the rest of the code about constructor in the OOP constructor.vb file in the codes folder.