

Model, View, and Control Layer. By Nathan Graves

About this File: Black Arrows represent function calls.

Green dotted arrows represent the program returning from a function that was called back to the previous layer. Data may or may not be returned at this time with `return()` statements.

It then continues to execute code in the program from where it left off in that Layer.

Note on Relationship: View layer has a Read Only relationship with the Model layer. The View Layer is allowed to read values from the Model layer, but never sets to it.

Model Layer

Comment: The Model layer doesn't really do much on its own. The `get`, `set`, or other functions are typically called to set data permanently or to read from the set data. The Model layer serves as a model for objects when their memory is created, but does not perform any actions on its own.

Advanced note: Model layer constructors may perform some default action to be used when an object is created. Such as setting the

2. User
Supplies
Input to
View Layer

User

1. View Layer provides output to user and prompts for input.

8. The View Layer outputs new information to the User and the cycle continues itself.

View Layer

3b. alternatively, the View Layer might call another View Layer Class and the cycle starts back at step 1 in the new View.

3. View Layer passes User input to Control Layer.

Specifically a function (or constructor) in View Layer would call a function (or constructor) in Control layer

7. Once the control layer is finished executing, the program returns to the view layer. The control layer does NOT call the View Layer. A value might be returned from the control layer to the View layer with a `return()` statement, but not always.

Control Layer

4. Control Layer decides what to do based on input.

Typically this would involve making calculations, the results of which will be set in the Model Layer shown in step 5. This might also simply be to set the user input to the Model layer.

Note: The Control Layer NEVER prints to the user.

5.

5. Once Calculations are made the Control Layer permanently sets the data to the Model Layer

6. Values might be read from the model layer into the Control Layer with a `get()` function call in order to make decisions or perform calculations.

6.

8.

1.

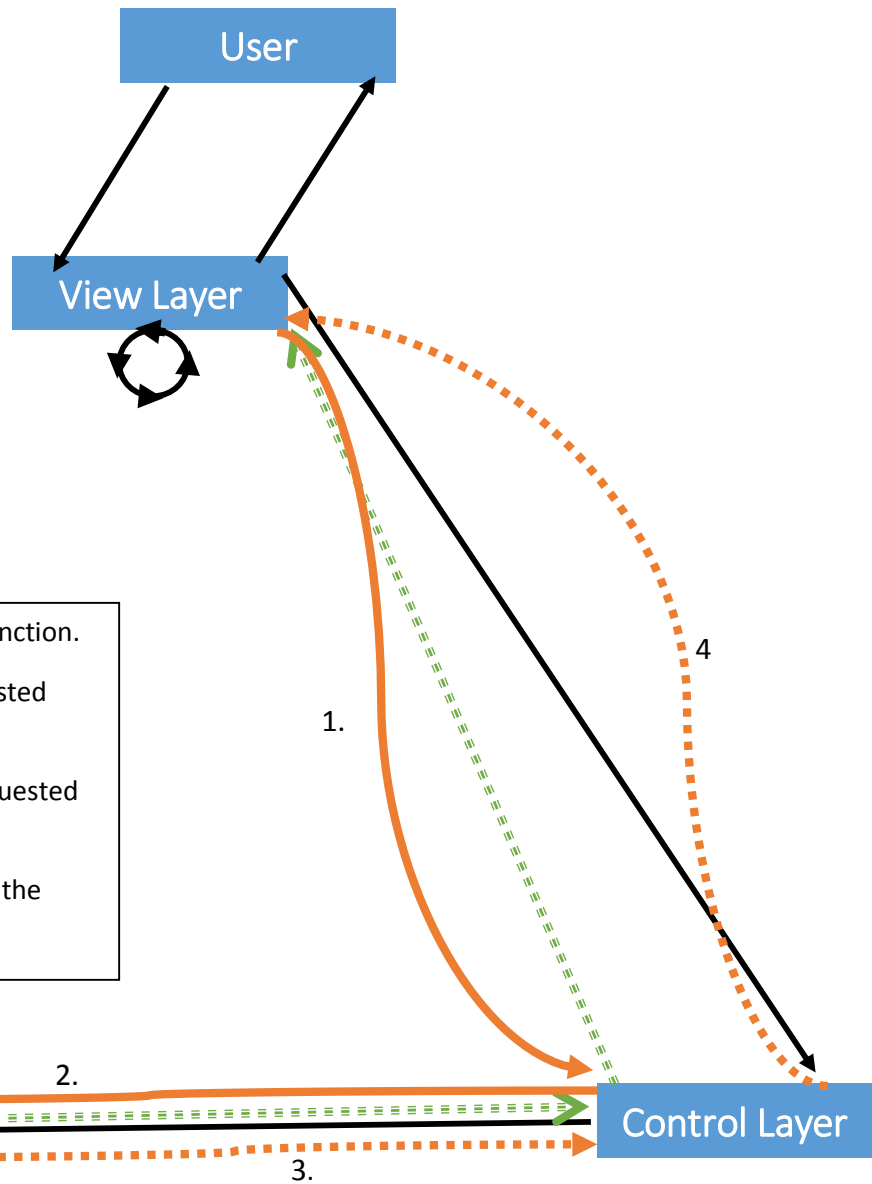
3.

7.

4

Special Note: The program my partner and I have created does not have the View Layer read data from the Model Layer Directly.

Instead it has to go through the Control Layer in order to reference the correct object. The Control Layer gets the data from memory and returns it to the View layer. As a result our diagram has a slight difference as seen here.



1. View Layer calls a Control layer function.
2. Control Layer gets the data requested from the Model Layer
3. Model Layer Returns the data requested to the Control Layer
4. Control Layer returns the data to the View Layer

Note: This may be what our text means when the View layer gets data from the model layer. I haven't seen data read straight from the model into the View because our objects are created within the Control Layer. This forces us to go through the Control layer in order to refer to the correct place in memory. There may be a more efficient (or at least different) method we don't know about, but of that I'm uncertain.