

VisualPro

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Abstract—

Index Terms—Visual Programming, Visual Scripting, Planner

I. INTRODUCTION

II. LITERATURE REVIEW

The Literature Review section covers the Pre-Planning, which shows the steps and the level of thought that went into deciding VisualPro's purpose and the existing software and prototypes. Some Notebook Planning may not make sense as some foreseeable problems were thought and planned in ahead of time.

A. Pre-Planning

1) *HTML Design*: Figure 1 shows a HyperText Markup Language (HTML) Design of how the User Interface should look. The Empty Column is where the user drops elements like Classes, Functions or Variables. Buttons on the right can be dragged and dropped on the Empty Column to the left. The functionality of the drop should create a new container, giving the user acknowledgement there's a new parent or sub-element with room for configuration and another drag and drop container within the class or function.



Fig. 1. HTML Design - Found at: [Original Image](#)

2) *Notebook Page 1-2*: Figure 2 contains numerous ideas. Page 1 contains a heading, 'Personal Assistant', which indicates the thought process of a personal assistant before the Visual Programming Scripting program progressed. After planning this, it became apparent to use a type of Artificial Intelligence (AI), which knew the basic syntax of different languages and would write or advise the user when typing. This process is very similar to TabNine (ref here).

The second page of this figure, shows a few different examples of IF statement syntax from languages to find a 'dynamic' common rather than keep it static like the previous software. The sketch below shows a name for the software and a example of how the language selection would look on UI.

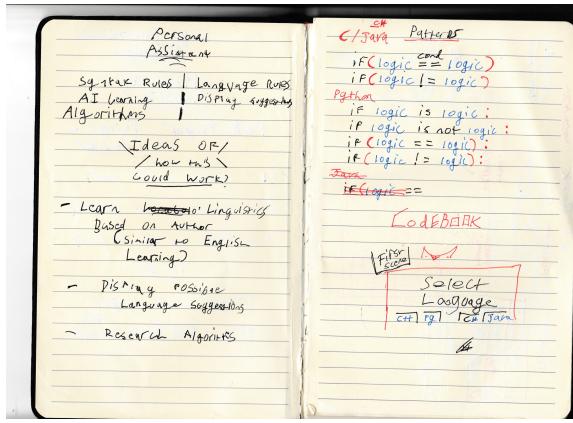


Fig. 2. Notebook Plan Page 1-2 - Found at: [Original Image](#)

3) *Notebook Page 2-3:* Figure 3 displays two pages of how the Visual Scripting could look. The top page shows the tools on the left, such as Logical, Structure and Scoping tools. On the right, it should show a list of current variables, functions and classes in a hierarchy style. The middle of the application is the work area.

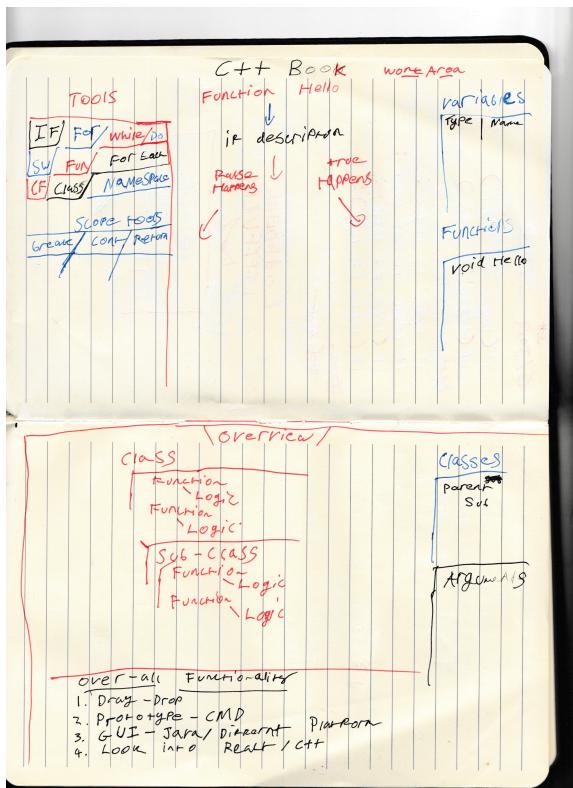


Fig. 3. Notebook Plan Page 3-4 - Found at: [Original Image](#)

4) *Notebook Page 5-6:* Figure 4 gives the planning of how the syntax for most programming and scripting languages. The plan points out patterns and tries to identify their names for the Extensible Markup Language (XML) and backend to comprehend. This piece of planning helped excel the development

of the program's dynamic side to allow the addition of new languages to the software.

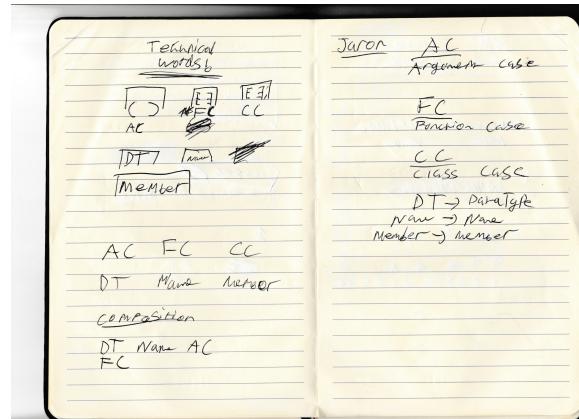


Fig. 4. Notebook Plan Page 5-6 - Found at: [Original Image](#)

5) *Notebook Page 7-8:* Figure 5 demonstrates how the XML would possibly look. The table shows N (Node), A (Attribute) and the Meaning. To explain what is going on, Node —0— is the header node (holds library data such as system or iostream), holds three attributes. Attribute —0— holds ‘Type’, which is the purpose, Attribute —1— holds the ‘Name’, which is the library’s name. Attribute —2— holds the ‘Syntax Value’, which in C# it is using ; and in C++, the value is #include <> .

According to the second node —1— holds information for structure or classes in languages. This node contains three attributes. Attribute —0— holds ‘Name of Struct (or) Class’, which contains the user-defined name they have created inside VisualPro. Attribute —2— holds the ‘Properties’ like the member of the struct/class. Attribute —3— holds the syntax value, the open and close case of a struct/class and layout within the struct/class.

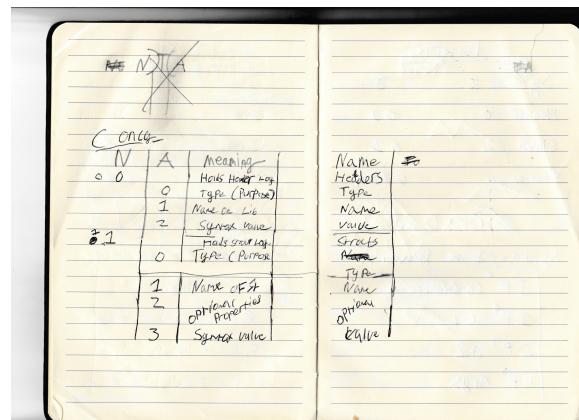


Fig. 5. Notebook Plan Page 7-8 - Found at: [Original Image](#)

6) *Notebook Page 9-10:* Figure 6 answers how the loops and logical statements work in the LanguageCompiler library. This planning shows how the XML nodes and the Planner List should work together. In theory, the Planner List, of what

the user populates with the program's use, combines with the XML document with the chosen language.

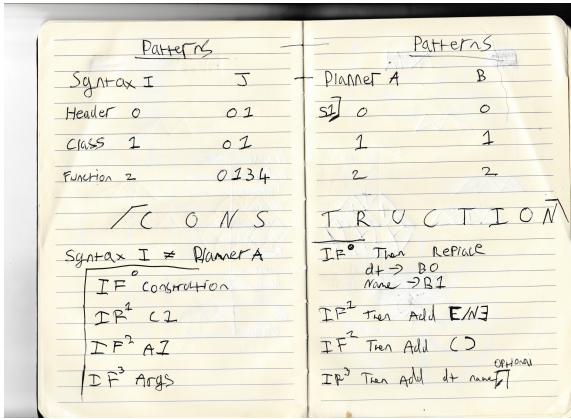


Fig. 6. Notebook Plan Page 9-10 - Found at: [Original Image](#)

7) *Notebook Page 11:* Figure 7 displays how the function node should work. This miniature theory is to help the developer understand how the XML document should work in a programmatical sense. This again helped when it comes to the prototypes further in this document.

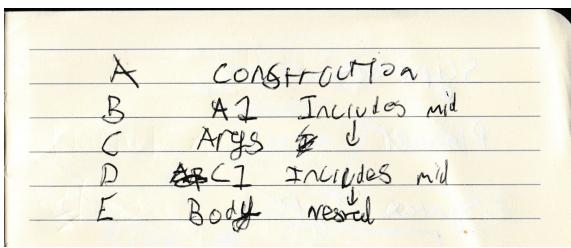


Fig. 7. Notebook Plan Page 11 - Found at: [Original Image](#)

8) *Notebook Page 12-13:* Figure 8 shows a predicted problem is as follows:

Description:

How will the program know where to put a sub-child and how will it?

Answer:

The planner would hold its parent and sub identity, and the Triangle (30 Code) symbol tells the software where to put the child. The Triangle symbol will only appear of classes or functions that have children. This means that the program will focus on parents, close the tags, then rscan to put the children in the code. The problem before is that it would be hard to tell the program to remember when and where to close tags if it got too deep in theory.

B. Surveying

1) *Survey Question:* According to the chart 9, 87.5% chose 'Programming Planner Improved', and 12.5% chose 'None of the Above' to the question, 'As a developer, which program worked for you?'. This data suggests that most of the responses preferred 'Programming Planner Improved' out of eight.

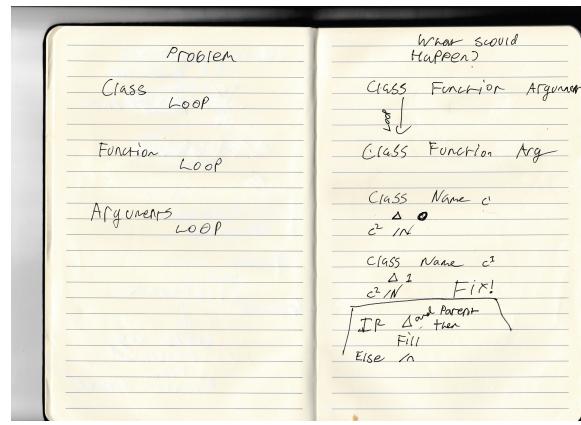


Fig. 8. Notebook Plan Page 12-13 - Found at: [Original Image](#)

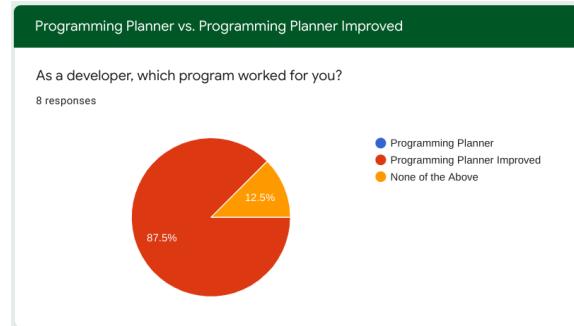


Fig. 9. Survey Question 1 - Found at: [Original Image](#)

2) *Survey Question 2:* Figure 10 asks the question, 'If the last option on the previous question is ticked, then explain why?'. Four responses replied back with:-

- 'More flexibility' -
This response could mean two things: the Programming Planner Improved is more flexible than the first program or that both programs would benefit from more flexibility.
- 'Both work' -
This response indicates that both software works.
- 'The option to choose the desired programming language at the end of the programming' -
- 'Because it had more options and had example code at the end of planning' -

If the last option on the previous question is ticked, then explain why:
4 responses

More flexibility
Both work
The option to choose the desired programming language at the end is a useful addition.
Because it had more options and had example code at the end of planning

Fig. 10. Survey Question 2 - Found at: [Original Image](#)

3) *Survey Question 3:*

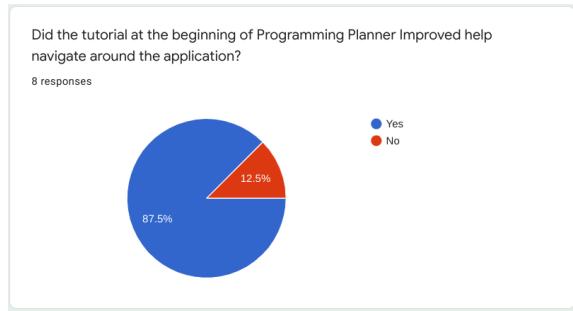


Fig. 11. Survey Question 3 - Found at: [Original Image](#)

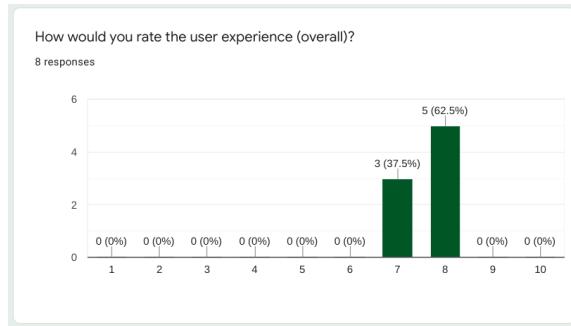


Fig. 14. Survey Question 3 - Found at: [Original Image](#)

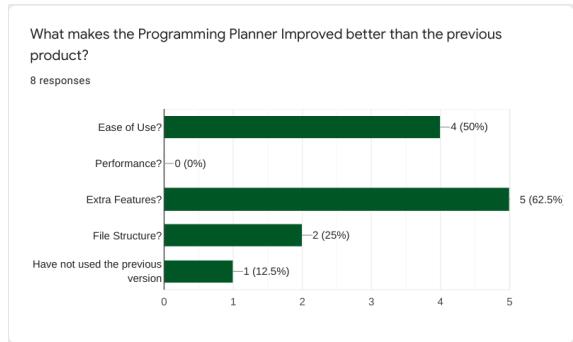


Fig. 12. Survey Question 3 - Found at: [Original Image](#)

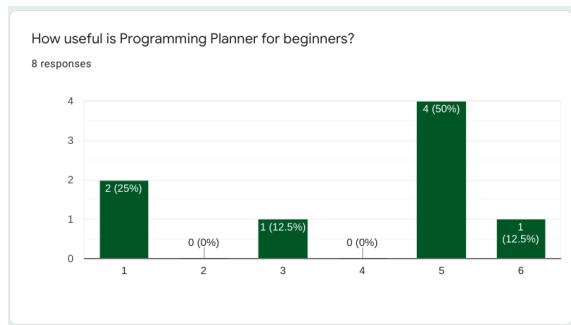


Fig. 15. Survey Question 7 - Found at: [Original Image](#)

4) Survey Question 4:

Explain your answer:

8 responses

More features allowed for a wider range of approaches

More languages and was easier to use. Very impressed.

Easier to use, the better

Have not used the previous version

Allowed me to create a function structure and save it. Seemed difficult to follow (variables weren't numbered)

Easy, helpful and understandable

The extra features added to the improved version of the program improve user experience by adding expanded usability.

It just had extra features and seemed more useful

Fig. 13. Survey Question 5 - Found at: [Original Image](#)

- 5) Survey Question 5:
- 6) Survey Question 6:
- 7) Survey Question 7:
- 8) Survey Question 8:
- 9) Survey Question 9:
- 10) Survey Question 10:
- 11) Survey Question 11:
- 12) Survey Question 12:
- 13) Survey Question 13:
- 14) Survey Question 14:
- 15) Survey Question 15:

16) Survey Question 16:

17) Survey Question 17:

18) Survey Question 18:

19) Survey Question 19:

III. PROTOTYPES

A. Design and Implementation

B. Test Plan

C. Recorded Problems

D. Unit Testing

IV. TERMINOLOGY

List of terminologies used in this document:-

- HTML - HyperText Markup Language.
- AI - Artificial Intelligence.
- XML - Extensible Markup Language.

V. APPENDICES

VI. REFERENCE LIST

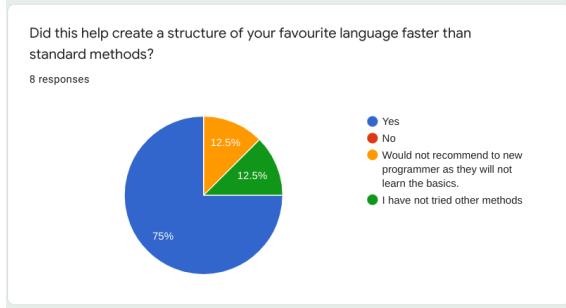


Fig. 16. Survey Question 8 - Found at: [Original Image](#)

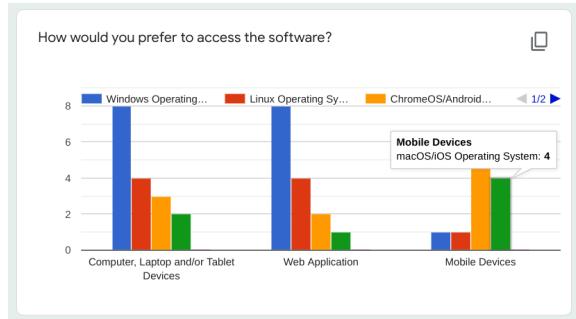


Fig. 20. Survey Question 12 - Found at: [Original Image](#)

What features would you wish Programming Planner to offer?

7 responses

A set of pre made open source programs that could be quickly accessed

Would be better with visualisation if writing a longer program.

Calculator?

A GUI

Allow sudo code comments to be added to the function

The target audience for this program will have little coding experience, and they may forget what is required of a function, a variable, etc. Adding examples to each page may be a good idea to reduce confusion.

When I wanted only one function on the variable creation it asked if it works with other functions but I didn't have any other functions

Fig. 17. Survey Question 9 - Found at: [Original Image](#)

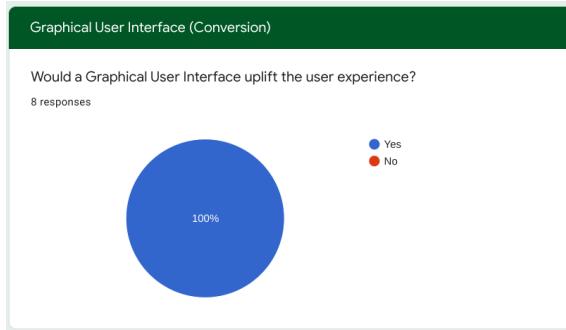


Fig. 18. Survey Question 10 - Found at: [Original Image](#)

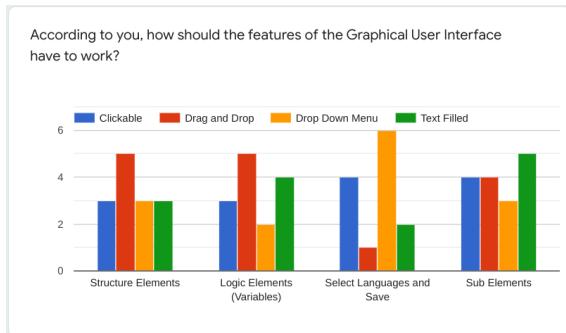


Fig. 19. Survey Question 3 - Found at: [Original Image](#)

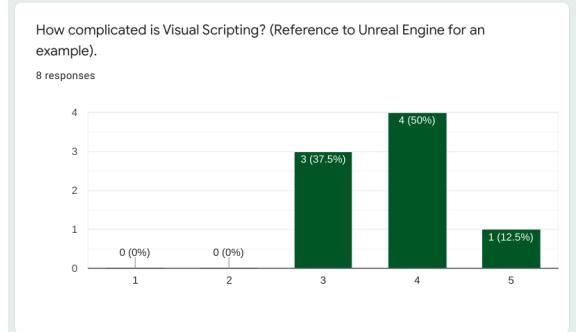


Fig. 22. Survey Question 14 - Found at: [Original Image](#)

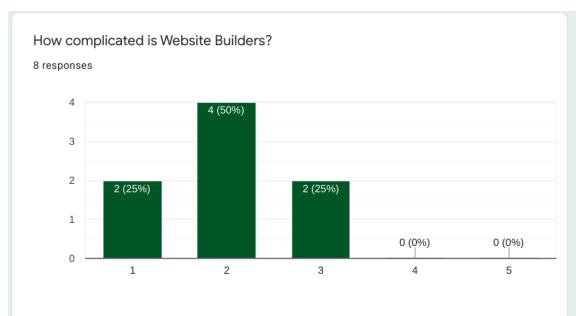


Fig. 23. Survey Question 15 - Found at: [Original Image](#)

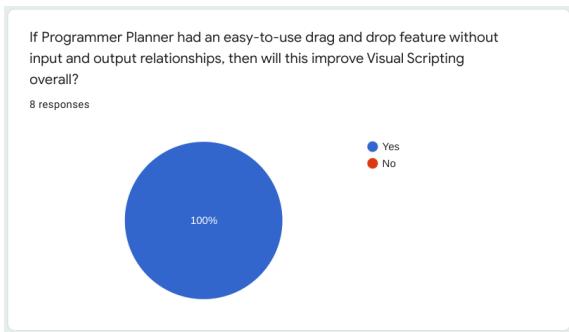


Fig. 24. Survey Question 16 - Found at: [Original Image](#)

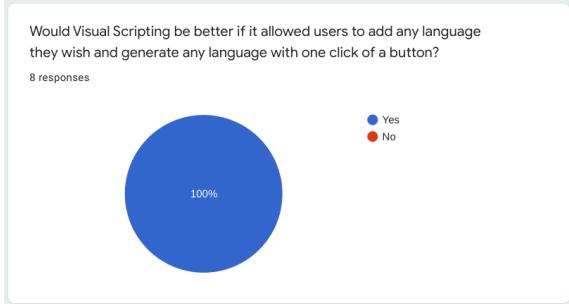


Fig. 25. Survey Question 17 - Found at: [Original Image](#)

What was the reason for your selection?

8 responses

save time and allow users to focus on the details

I would like to code in any language I choose if that option was applicable.

Again, the easier to use, and the more features, the better

Useful feature

Makes it more visual

More accessibility

A feature such as this would greatly reduce the production times involved in program development.

Would be easier to write programs (for some people)

Fig. 26. Survey Question 18 - Found at: [Original Image](#)

Would you like to leave any extra feedback?

8 responses

No

A training manual along with some beginner tutorials would really help new users get to grips with the software

Command-line is hard on eyes when using. Not very good for Visual Scripting in general.

Nothing besides a nice GUI

None

Introducing both drag and drop, as well as text filled features will appeal to both beginners and experienced programmers.

Fig. 27. Survey Question 19 - Found at: [Original Image](#)