A Streaming Digital Ink Framework for Multi-Party Collaboration

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Introduction

Pen-based collaboration in mathematical domains can significantly increase productivity. We are interested in development of a framework that facilitates mathematicians to collaborate online over pen-based and graphical interfaces.

Framework Portability

It is critically important for collaboration software applications to be platform-independent. We present a portable framework to address this problem.
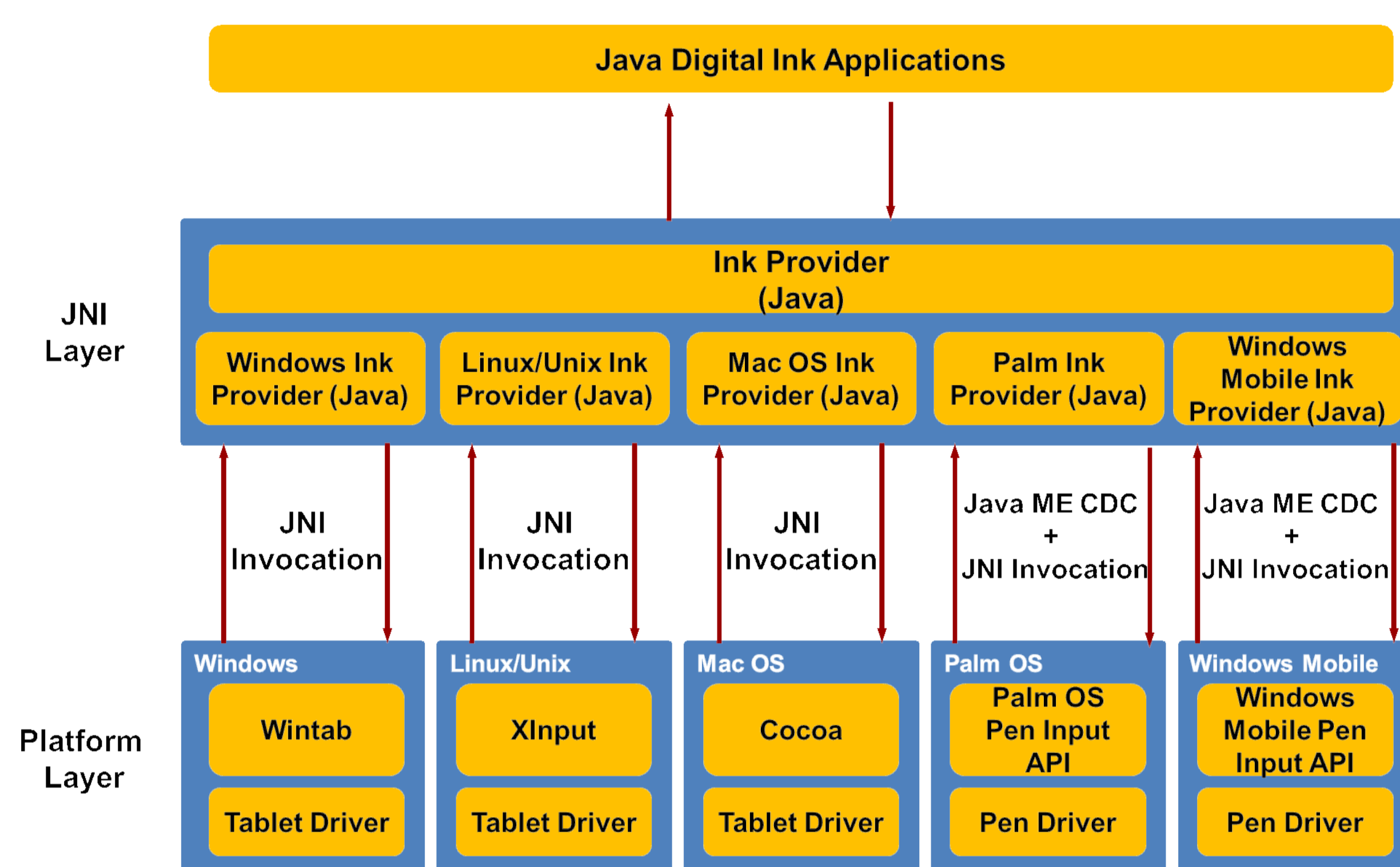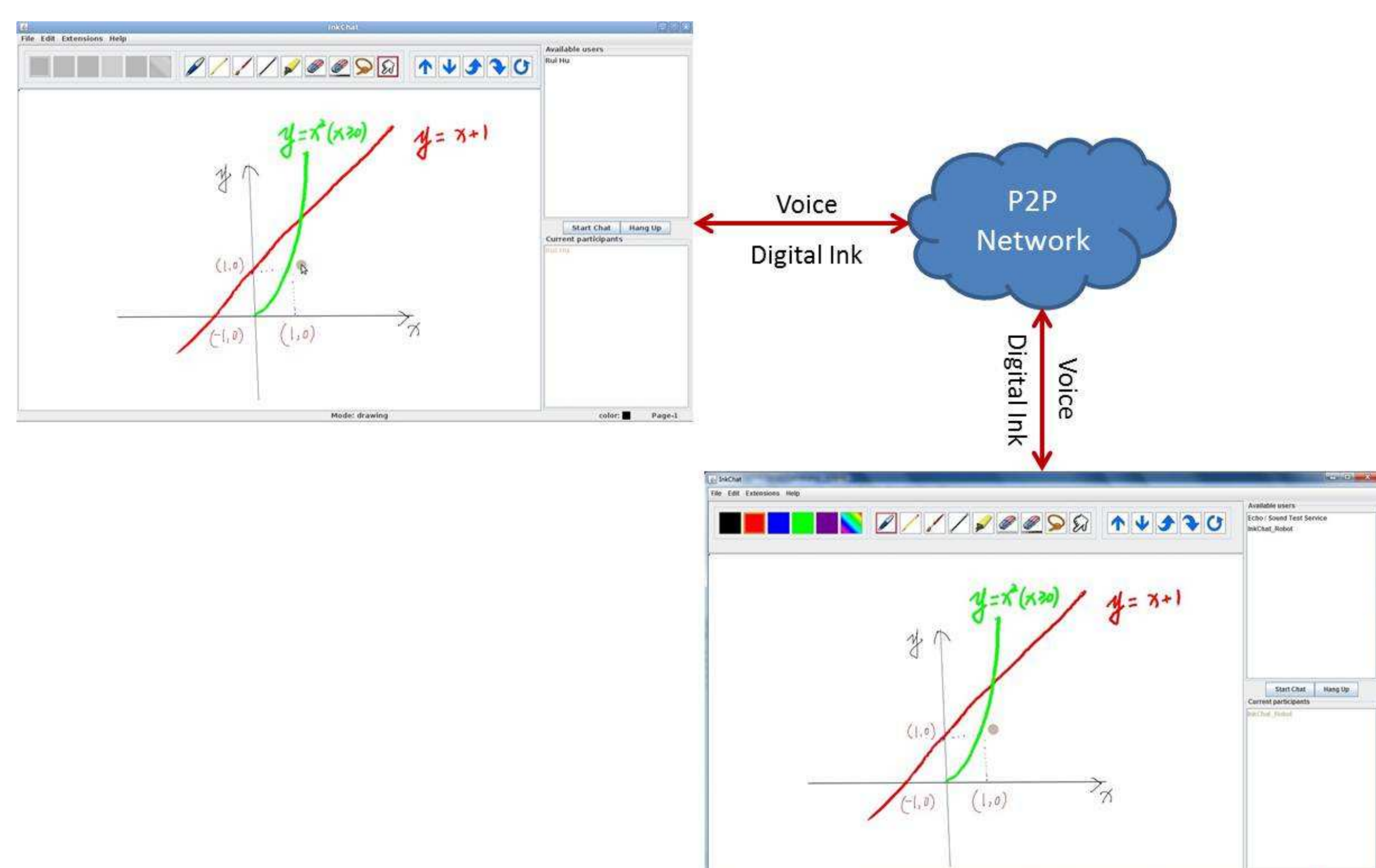

Framework Architecture

We present a framework for multi-user online collaboration in mathematical domains, with session recorded in rich formats that allow semantic analysis and manipulation of the content.
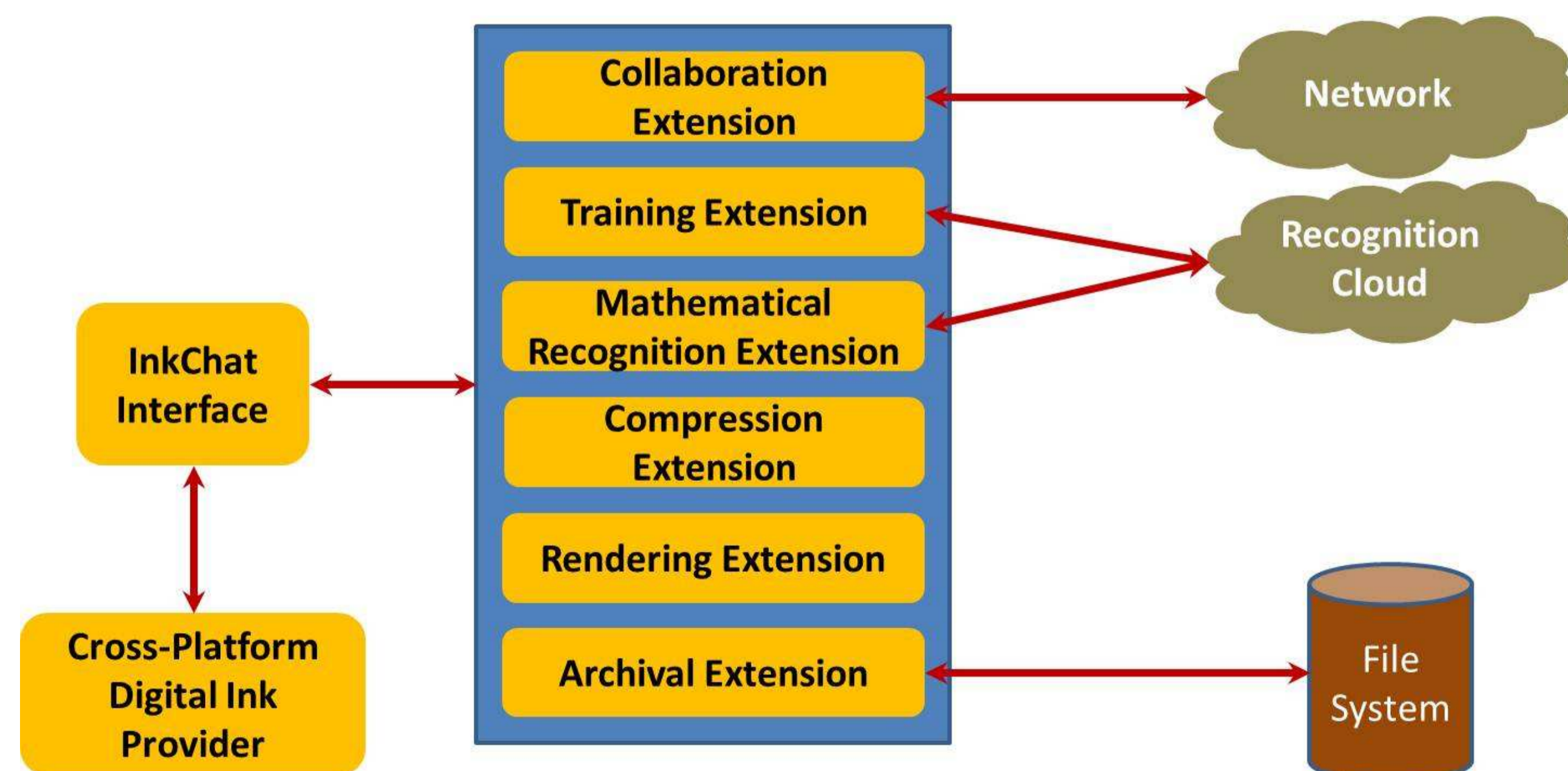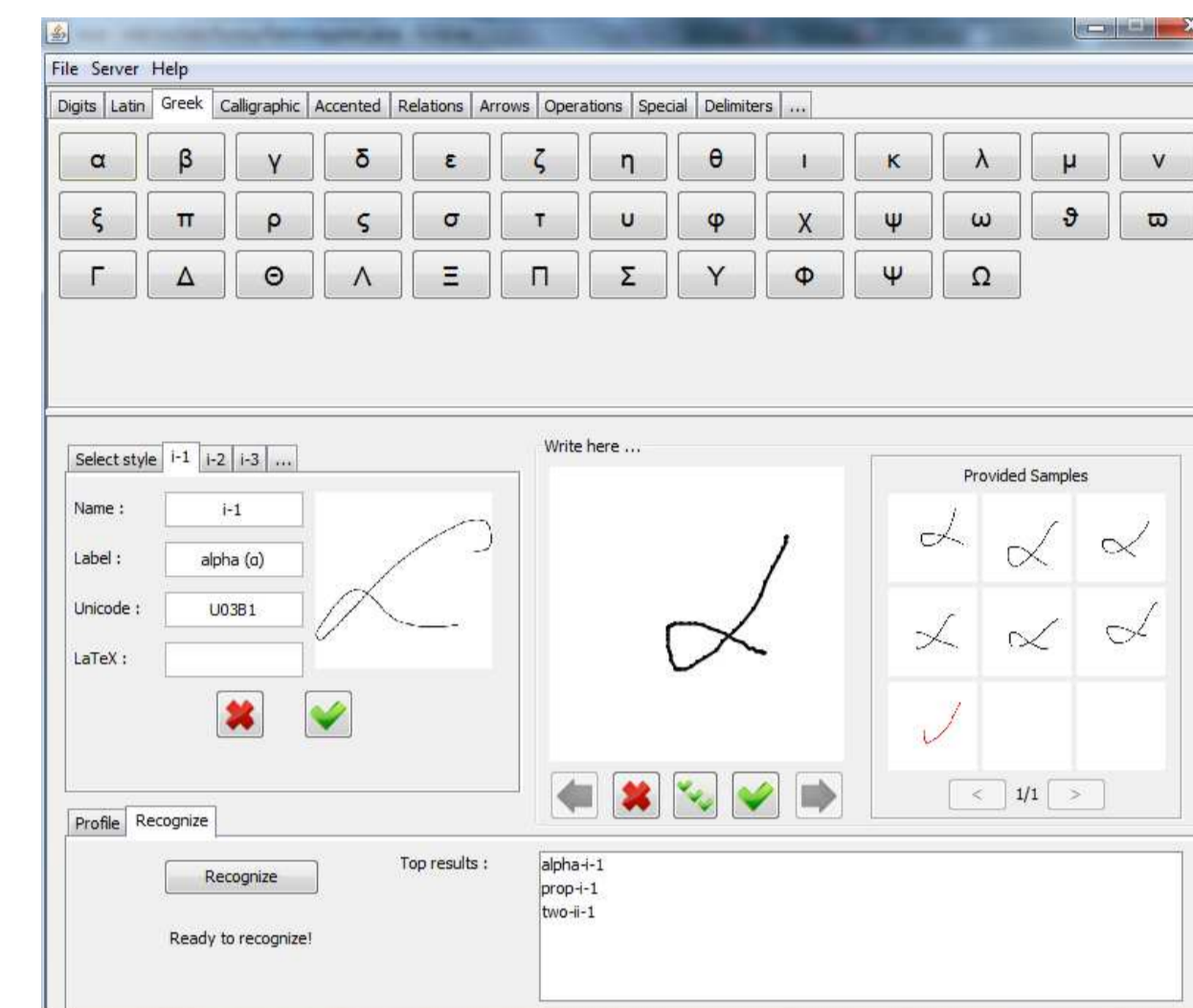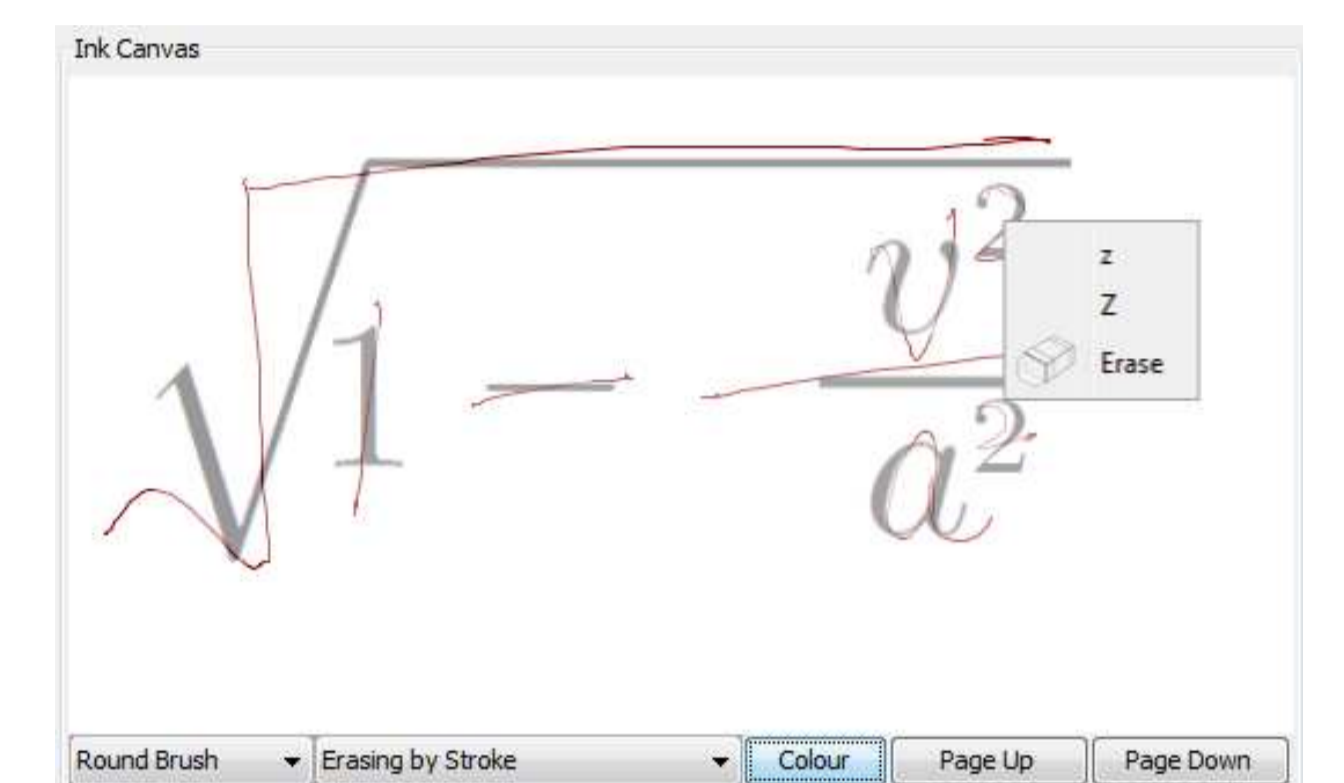

Collaboration

Recognition

The framework cooperates with a training extension to personalize the recognizer for each individual and a recognition extension to convert user's input into machine-understandable format.
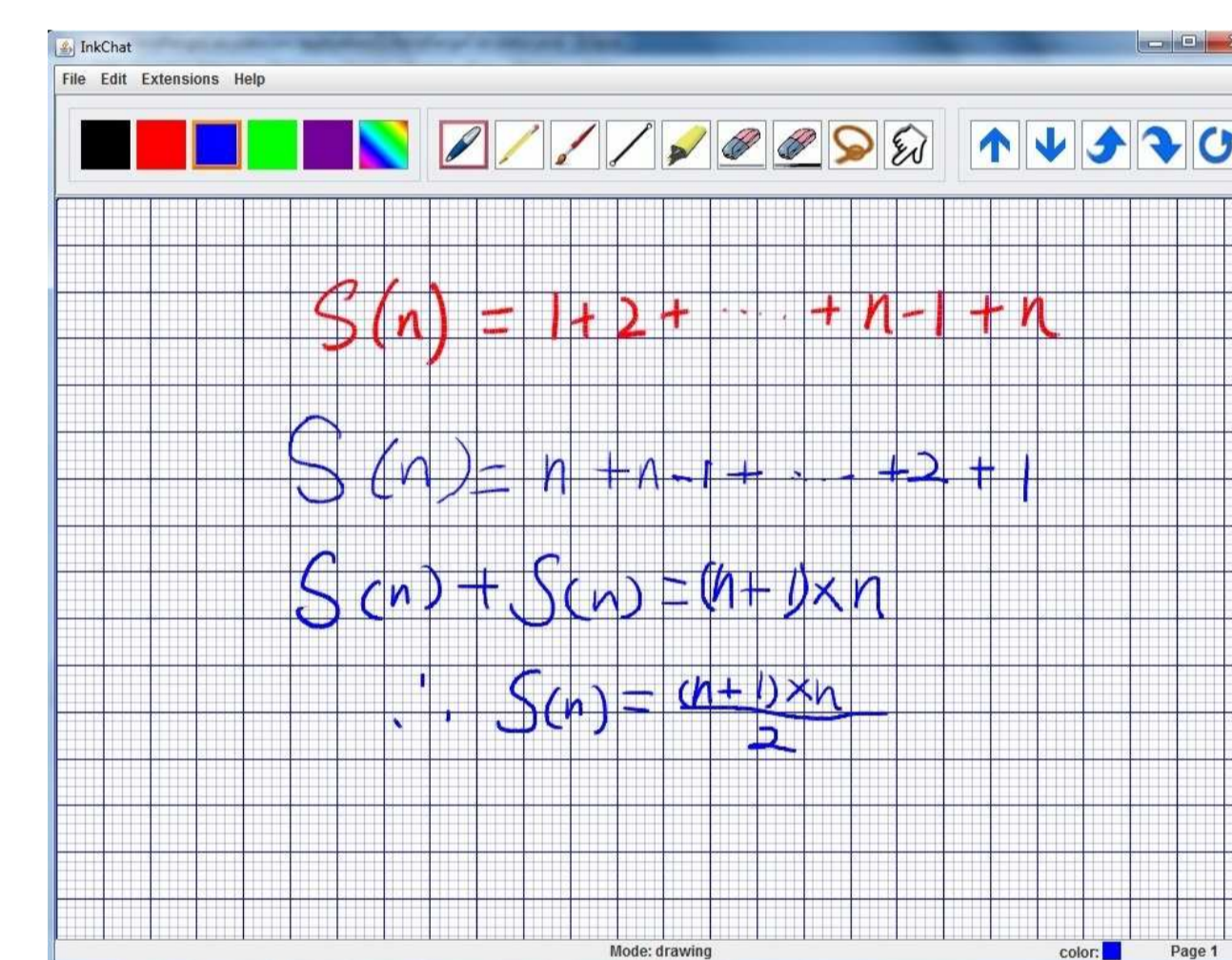

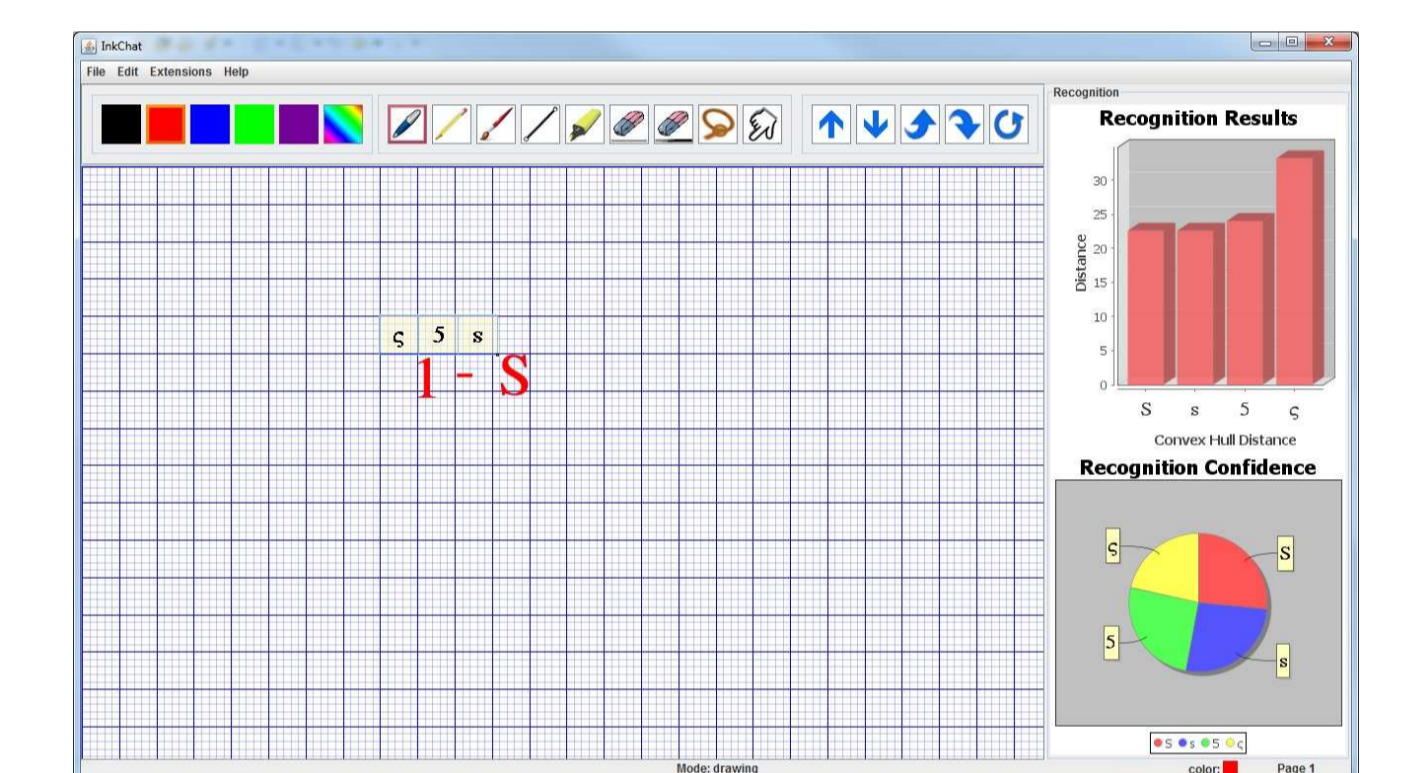(a) Training extension   (b) Recognition extension
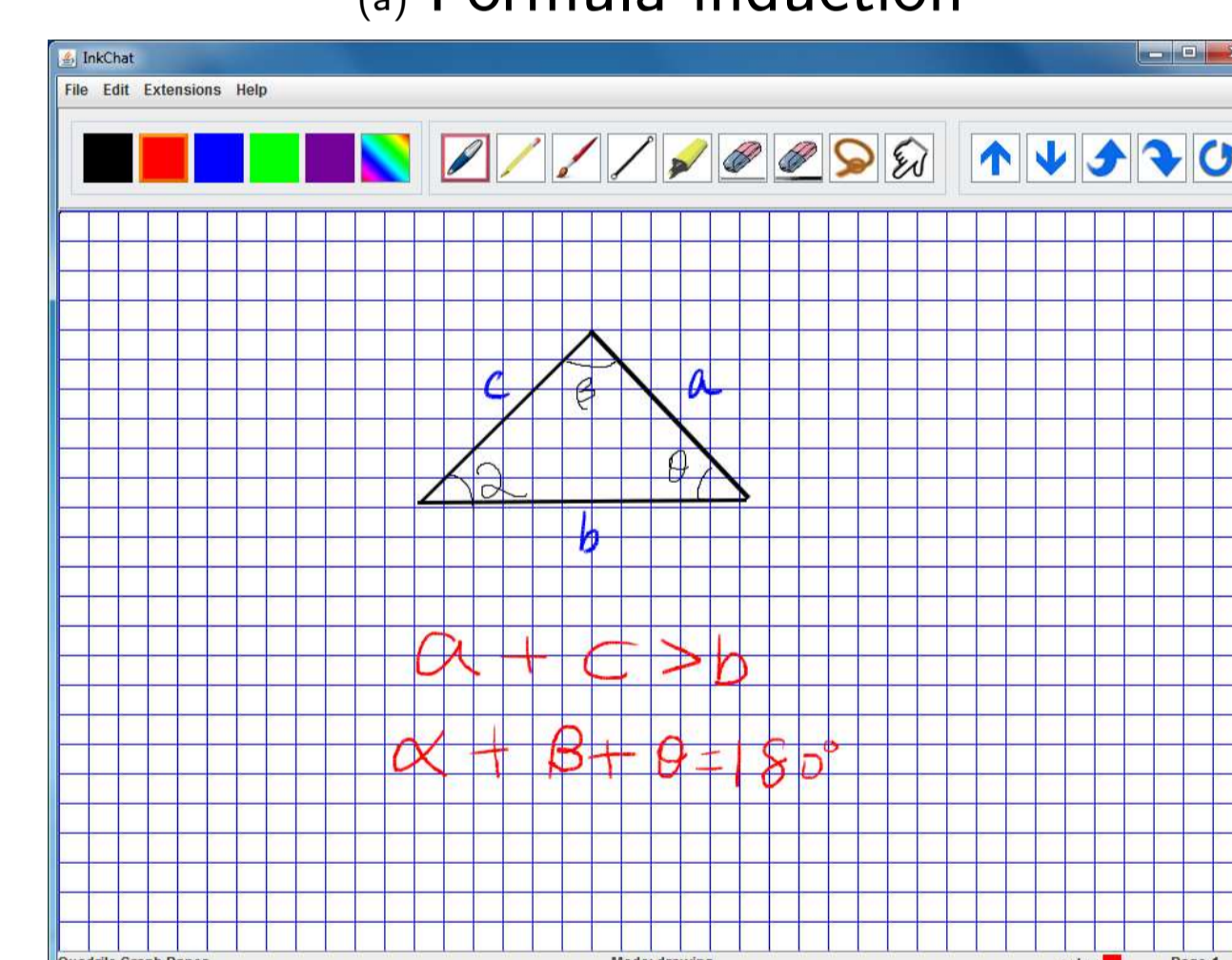
Case Studies

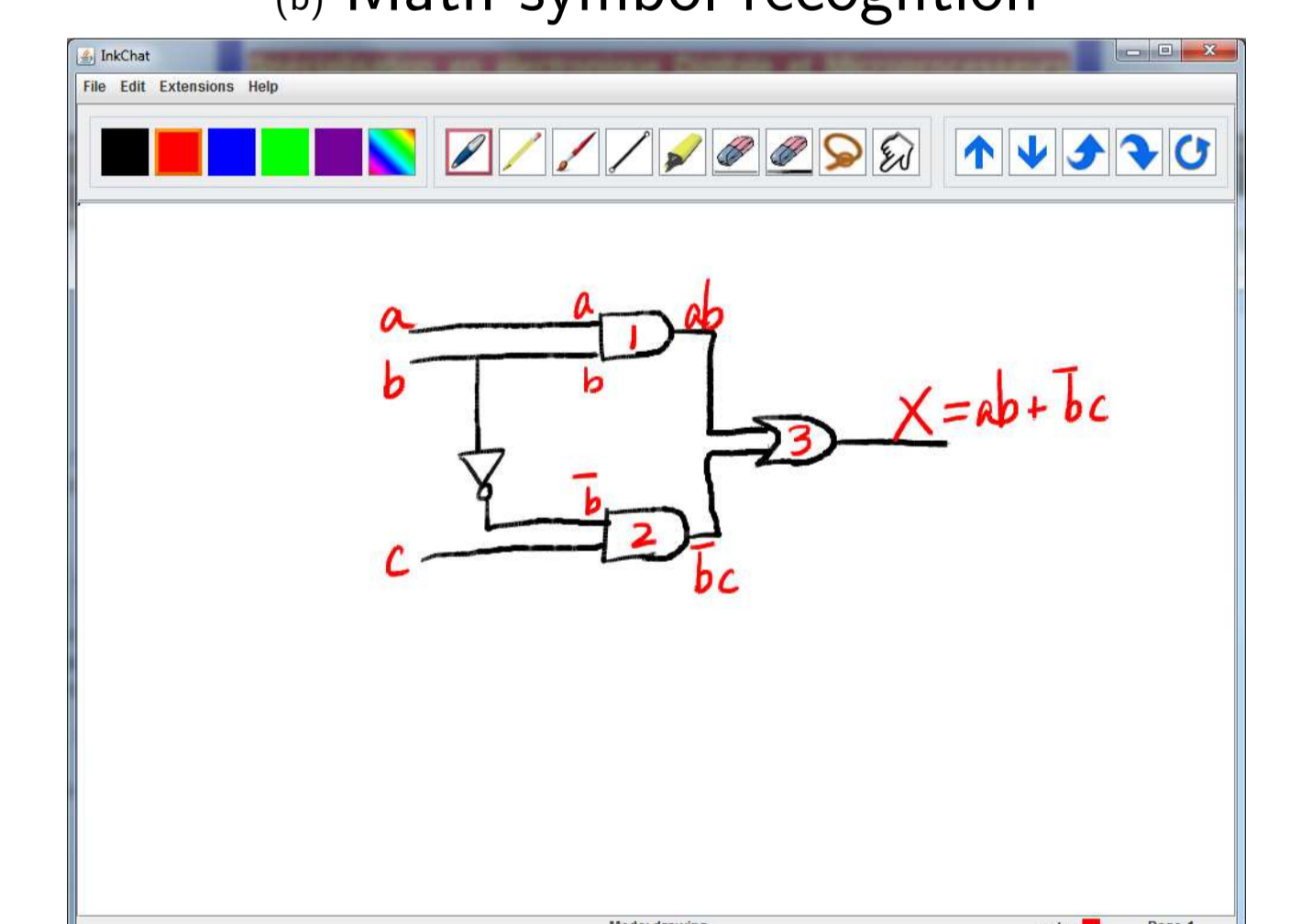Here we describe several cases when the framework is proved useful.

(a) Formula induction   (b) Math symbol recogntion

(c) Online tutoring   (d) Circuit diagram

Conclusion

We have presented a framework for pen-based multi-user online collaboration in mathematical domains. The framework facilitates teamwork by allowing participants to make visual contributions on the same canvas. We have also discussed several cases when the framework was found to be useful.

References

[1] Rui Hu, Vadim Mazalov and Stephen Watt, *A Streaming Digital Ink Framework for Multi-Party Collaboration*, Proc. 2012 Conferences on Intelligent Computer Mathematics, (CICM 2012), July 9-14 2012, Bremen, Germany, Springer Verlang (to appear).