

# Introduction to Nota Bene (NB)



Presented by  
Abayomi-Alli, A. (Ph.D)

AT A 2-DAY WORKSHOP  
ON  
MODERN METHODS OF TEACHING  
AND LEARNING IN HIGHER  
EDUCATION

25<sup>th</sup>-26<sup>th</sup> January, 2016

# Introduction to NB

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- NB is a web-based tool where users can read and annotate PDF documents using standard web browsers;
- Annotations in NB are either anchored to a particular location in the document or are general comments on the document;
- NB stand for “nota bene”;
- MIT’s Computer Science and Artificial Intelligence Laboratory developed NB for collaborative reading and learning.

# Introduction to NB (Cont'd)

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- NB is currently used in several MIT courses and over 100 courses in 10 other institutions.
- Teachers who wish to engage students more deeply in reading and wish to collect a class-wide perspective around the readings will appreciate NB.
- NB target students reading lecture notes and draft textbooks with the aim of helping each student to gain a deeper understanding about the contents of the text.

# Introduction to NB (Cont'd)

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- NB helps student see whether the questions they have, are shared by others, or in some cases, whether they have misunderstood or glossed over an important concept.
- NB's developers have conducted research that indicates when students read and annotate consistently throughout the entire document, they interact more frequently with peers' comments than in a traditional discussion board and are more motivated to complete reading the lecture note/textbook.
- NB presents a strong motivation for the online reader who wants to see up-to-the-minute peer interactions.

# Introduction to NB (Cont'd)

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- Students appreciated that high-quality peer responses happen much more quickly than when they depend on a single instructor.
- Students and instructors agree that the collaborative reading inside NB offers a clear alternative to paper and online discussion boards when it comes to collaborative reading.
- The user dashboard provides a summary list of student contributions, highlighting items that have been flagged with a reply request (e.g. problems or questions that need immediate attention).

# Introduction to NB (Cont'd)

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- When used correctly NB increases participation and reading rates, highlights trouble spots, and allows students to see what their peers think prior to the class session so that they use class time most efficiently.
- The instructor can get a quick overview of each student's work and download a printable version of the annotated document to use in the classroom.
- Collaborative work will take place heterarchically, which means a perfect equality of all participants.

# NB's Attributes

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Functionally, NB has many of the same attributes as other text annotation tools such as:

- A file repository for PDFs (and other text-based files) that is restricted to students;
- Class-viewable comments;
- A discussion threads;
- A dashboard that presents an overview of recent activity to the instructor,

# Advantages of NB

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## NB has the following advantages:

- When reading the text, questions from students can be answered by their colleagues;
- The lecturer on one hand will be relieved and the “questioner” does not have to wait too long for a response;
- Furthermore, when students pass on their knowledge, they tend to gain more insights;
- NB allows us to read the text in many different and differentiated ways creatively. For example, sample videos, soundtracks or other specialized texts can be linked to specific text;



# Advantages of NB (Cont'd)

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- When used correctly NB increases participation and reading rates;
- Students can highlights troubled spots in the text;
- NB allows students to see what their peers think about different areas of the text prior to the class session;
- It serves as a class rehearsal for the lecturer and students.

# Some NB FAQ's

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Q: Is NB free to use on <http://nb.mit.edu> for educational purposes?

- A: Absolutely.

You are welcome to use NB server at <http://nb.mit.edu> to create an account for your class, upload PDFs, and invite students and colleagues.

However, please be aware that NB is a research project, so it is offered "AS-IS":

# Some NB FAQ's (Cont'd)

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**Q: I've never used NB before. How do I get started?**

- **A: It is very simple: Just fill in the form at:**  
<http://nb.mit.edu/newsite>

Setting up a class, adding folders,  
uploading PDFs and inviting students is  
straightforward.

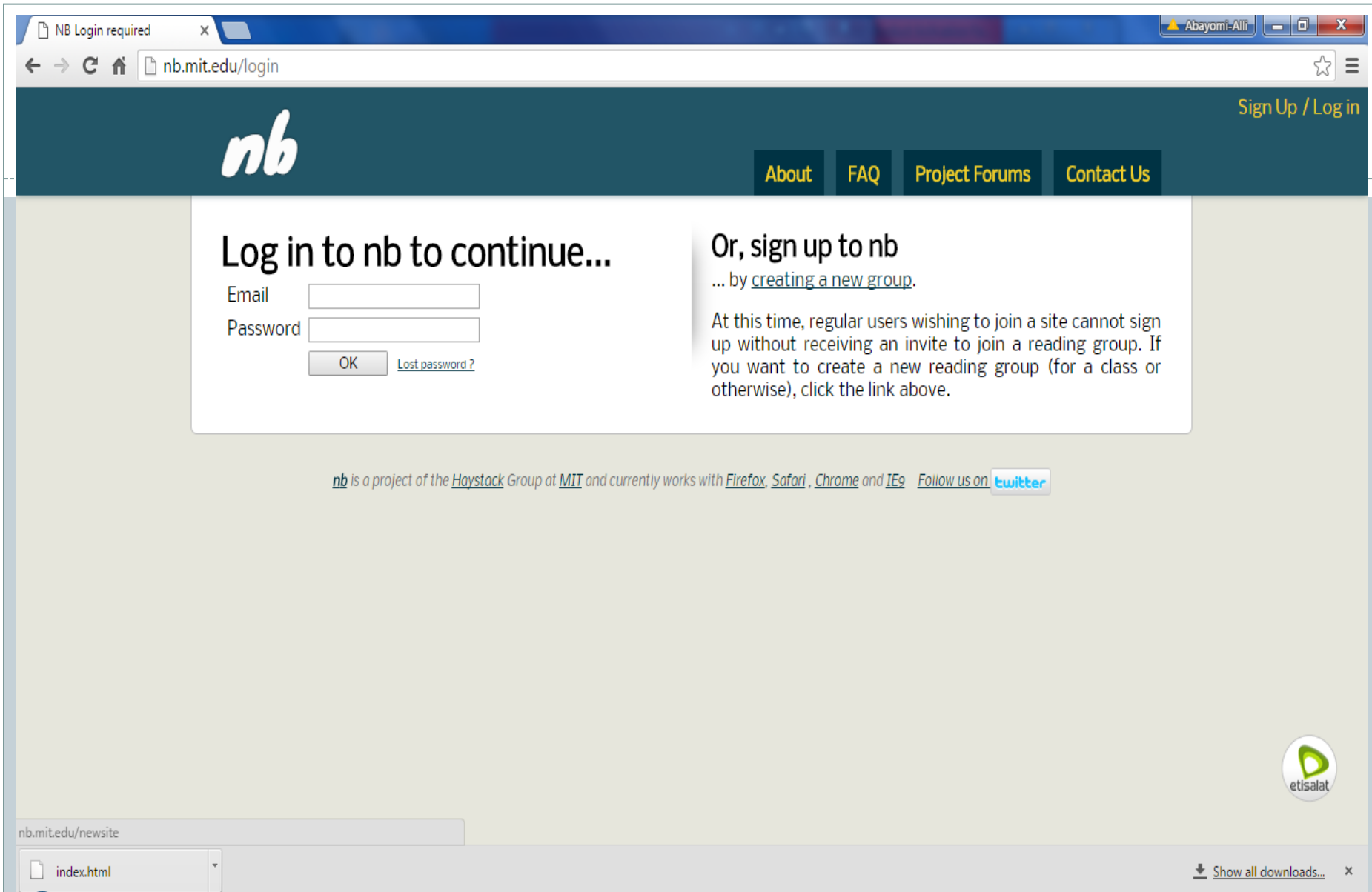


Figure 1: An NB's sign up and home page

The screenshot shows a web browser window with multiple tabs. The active tab is 'nb.mit.edu'. The page header includes the user's name 'Adebayo Abayomi-Alli' and a 'Help' link. The main content area is titled 'Admin Controls' and features a sidebar with 'Home', 'Dr. Abayomi-Alli Adebayo', and 'CSC 323'. The main section is 'Contents of CSC 323', which includes a table of documents and two status messages.

**Admin Controls**

Buttons: Add file, New folder, Invite Users, Users, Sections, Properties, Spreadsheet, Download as .xls

**Contents of CSC 323**

Sort by: date added, name

Name	Assignment	Download PDF	Stats	Actions
<a href="#">Successful Classroom Development of a Social Document Annotation System NB Paper.pdf</a>	No	<a href="#">original</a> <a href="#">annotated</a>	me 1 all 3	<a href="#">Actions</a> <a href="#">Analytics</a>

You have 0 feedback request.

Your classmates have no pending questions.

nb.mit.edu/#

Download bar: 12552883\_10153407...jpg, 12548964\_10153407...jpg, 12494675\_10153891...jpg, 12508856\_10153891...jpg, 12522986\_10153891...jpg, [Show all downloads...](#)

Figure 2: An instructor's home page on NB

# Some NB FAQ's (Cont'd)

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- A student will typically accept an NB invite and log in to NB;
- He/she then selects a document and starts reading;
- As the student peruse the document:
  - they can highlight segments of text and immediately a small text area swoops to the margin and awaits annotation;
  - Small, subtle indicators encircle selections;
  - As the reader skim the document, nearby annotations light up, and invite further exploration or response.

# SETTING UP NB

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Q: How do I create a new class?

- A: Once you're logged in;  
click on you name on the top-right of the  
screen;  
and select the menu "Create a new class".

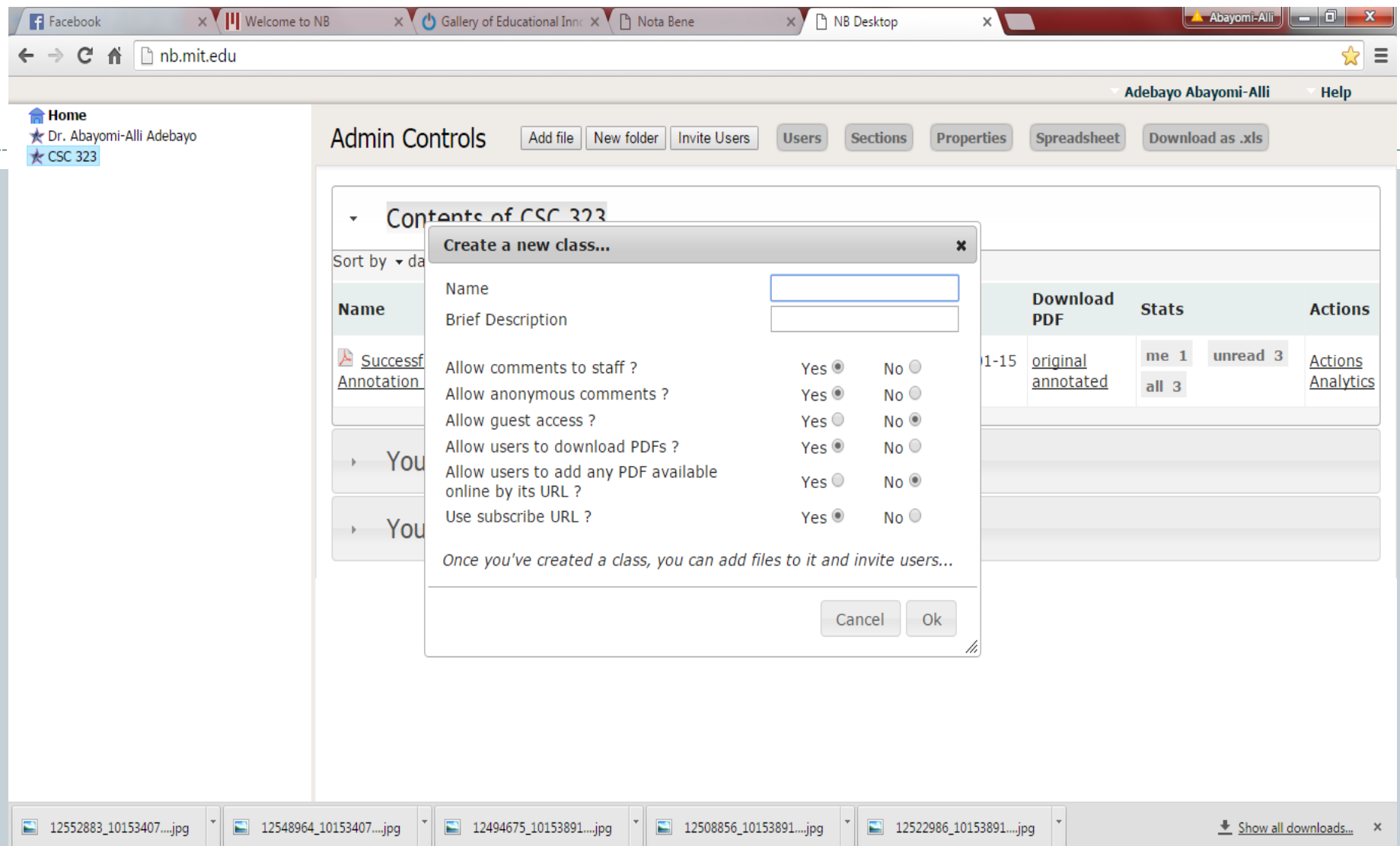


Figure 3: Creating a new NB class



Facebook Welcome to NB Gallery of Educ Nota Bene NB Desktop Properties for C Properties for C Successful Clas Abayomi-Alli

nb.mit.edu/properties/ensemble/7496

nb Sign Up / Log in

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## Properties for CSC 323

Subscribe link:  
<http://nb.mit.edu/subscribe?key=7CV9wXlG7t5eyyZ5Zs631cPSDF4m7u9DHN7UPbZkDo5KuYv3M3>

Name: CSC 323

Description: Digital Electronics and Comp

Allow users to write 'staff-only' comments: ☒

Allow users to write anonymous comments: ☐

Allow users to make comments private to tagged users only: ☒

Allow guests (i.e. non-members) to access the site: ☐

Allow users who have the 'subscribe link' to register by themselves: ☒

Allow users to download the PDFs: ☒

Allow users to add any PDF accessible on the internet by pointing to its URL: ☐

Section assignment: NULL

Metadata:

Successful\_Classro...pdf 12552883\_10153407...jpg 12548964\_10153407...jpg 12494675\_10153891...jpg 12508856\_10153891...jpg Show all downloads...

Figure 4: Viewing the class properties

# Situated Annotations

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- To add an annotation somewhere in the document;
- Users click and drag to select a region they want to comment on;
- This region is highlighted and an in-place annotation editor pops up (bottom of Figure 4).

students' online learning conversations.

### SYSTEM DESCRIPTION

NB is a web-based tool where users can read and annotate PDF documents using standard web browsers. After logging in, a student typically selects a document and starts reading. As shown on Figure 1, the document is augmented by annotations that the students and faculty have written, which appear as expandable discussions on the right-hand-side panel. Hovering someplace in the document highlights the annotations covering that place, whereas clicking somewhere on the document scrolls to the corresponding annotations. Annotations in NB are either anchored to a particular location in the document or are general comments on the document.<sup>3</sup> To add an annotation somewhere in the document, users click and drag to select a region they want to comment on. This region is highlighted and an in-place annotation editor pops up (bottom of Figure 1).

Users can choose whether their comment should be visible to everyone in the class (the default), or to the teaching staff only, or to themselves only. They can also choose whether the comment is anonymous (the default) or signed. Once a comment has been saved, its author can delete it or edit it as long as there hasn't been a reply. They can also change its properties (visibility, anonymity). Users can tag each other's comments with the following tags: *Favorite*, *Hidden*, *I agree*, *I disagree*, and *Reply requested*.

<sup>3</sup>We have found that general comments are rarely used, and do not discuss them further.

shows that total number of comments submitted in the top 15 classes. 13 of these classes received more comments than the maximum (415) captured in any usage of Stellar, MIT's forum tool. The top five each collected more comments than the top 50 classes using Stellar combined (3275).

Class	comments	per user
Approximation in Science & Eng.	14258	151
UI Design and Implementation (*)	10420	83
Math Methods for Business (*)	4436	61
Mathematics for CS (*)	3562	23
Mathematics for CS (*)	3270	34
UI Design and Implementation (*)	2703	61
Signals and Systems	1996	39
Electricity and Magnetism	1254	17
Mathematics for CS (*)	1045	26
Pseudorandomness	880	40
Dynamics	789	21
Adv. Quant. Research Methodology	570	9
Math Methods for Business (*)	530	12
Concepts in Multicore Computing	336	21
Moral Problems and the Good Life	233	8

**Table 1. Usage of NB in other classes. Starred classes are re-uses by a faculty member who had already used NB.**

### USAGE ANALYSIS

Given that NB is seeing some adoption, we wished to investigate *how* and *why* NB is being adopted and used in the classroom. Due to space limitations, we focus the remainder of this article on the single most successful use of NB, in *Approximations in Engineering*, Spring Semester 2010 at MIT. The teacher was Sanjoy Mahajan, our fourth author. The reader might worry that we are skewing the data, but we believe this choice is justified for three reasons:

2 threads

me 2 ★ 0 ? 1 more filters

2 threads on page 1

what is the full meaning of NB

how does this work?

reply requested

how does this work?

Oluwaseyi Oyenehin ? 1 ★ - 19 Jan, 02:38PM

NB is a collaborative annotation tool for learning. It targets students reading lecture notes and draft textbooks. When used correctly NB increases participation and reading rates; Highlights trouble spots; Allows students to see what their peers think prior to the class session; It serves as a discussion forum in the document margins; NB lets students ask questions from their lecture notes while reading and not or

New note...

if you choose myself only, it means the student is simply just making personal note of important portions in the lecture note.

Shared with: The entire class

Reply Req The entire class Instructors and TAs Myself only

Submit

Cancel

12552883\_10153407...jpg 12548964\_10153407...jpg 12494675\_10153891...jpg 12508856\_10153891...jpg 12522986\_10153891...jpg Show all downloads

Figure 5: Annotating text in a PDF document

# Situated Annotations (Cont'd)

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## **If the student decides to make a note or ask a question:**

- the result can be made public to the class;
  - visible only to student and instructor;
  - or private to the student alone.
- 
- Annotations can even be set to appear anonymously to other registered students.

# Situated Annotations (Cont'd)

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- Once a comment has been saved, its author can delete it or edit it as long as there hasn't been a reply.
- You can also change the comment's properties (**visibility, anonymity**) (See Figure 5).
- Users can tag each other's comments with the following tags:  
**Favorite, Hidden and Reply requested.**

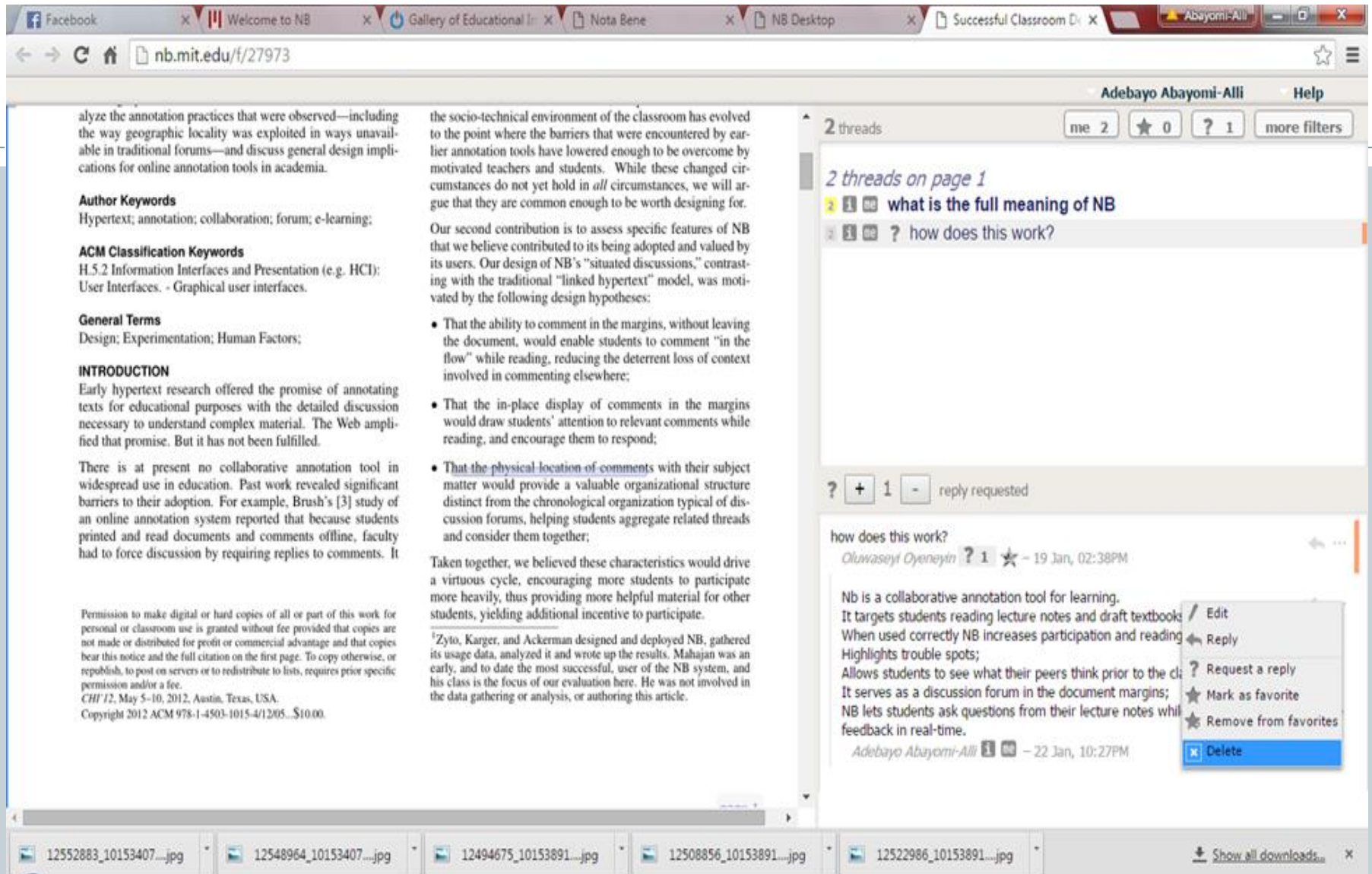


Figure 6: Changing the comment's properties



# NB LOGIN

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Q: How do I change my password?

- A: Once you are logged in;  
click on your name on the top-right of the screen;  
and select the menu "Settings".

Facebook Welcome to NB Gallery of Educational Inn Nota Bene NB Desktop Abayomi-Alli

nb.mit.edu

Home  
Dr. Abayomi-Alli Adebayo  
CSC 323

Admin Controls Add file New folder Invite Users Users Sections Properties Spreadsh

Adebayo Abayomi-Alli Help  
Settings  
abayomialli@funaab.edu.ng  
Create a new class.  
Log out

Contents of CSC 323

Sort by date added name

Name	Assignment	Download PDF	Stats	Actions
<a href="#">Successful Classroom Development of a Social Document Annotation System NB Paper.pdf</a>	Yes - due 2016-01-15 at 10:03	<a href="#">original</a> <a href="#">annotated</a>	me 1 unread 3 all 3	<a href="#">Actions</a> <a href="#">Analytics</a>

You have 0 feedback request.

Your classmates have no pending questions.

nb.mit.edu/#

12552883\_10153407...jpg 12548964\_10153407...jpg 12494675\_10153891...jpg 12508856\_10153891...jpg 12522986\_10153891...jpg Show all downloads...

Figure 7: Settings and other menus



Facebook Welcome to NB Gallery of Educational In Nota Bene NB Desktop Your NB Settings Abayomi-Ali

nb.mit.edu/settings

**nb** Sign Up / Log in

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## NB Settings for Adebayo

### Authentication

New Password

Please Retype

### Email Notifications

Comments that I wrote

New reply in a discussion to which I participated

New comments in classes for which I'm a staff member (if any)

New comments in which I am tagged

*nb is a project of the Haystack Group at MIT and currently works with Firefox, Safari, Chrome and IE9 Follow us on [twitter](#)*

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Figure 8: Authentication and Email notifications

# NB Login (Cont'd)

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**Q: Is there a way to reset my password if I forgot it?**

- **A: You can ask for password reset instructions near the login box.**

# MEMBERSHIPS

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**Q: How do I give students access to contents from a class on NB?**

- **A: It depends on the class settings:**
  - If the class is "by invitation only", then you need to send an invitation students using their email addresses.
  - If the class provides a "subscribe link", the student just need to enter that "subscribe link" on their browser and confirm that they want to be part of that class on NB.
  - If the class material is viewable by the whole world, then anyone can access your class contents by visiting the URL of the class (it looks like [http://\[SERVER\\_NAME\]/f/\[SOME\\_NUMBER\]](http://[SERVER_NAME]/f/[SOME_NUMBER]),
- for example <http://ocw.csail.mit.edu/f/1>

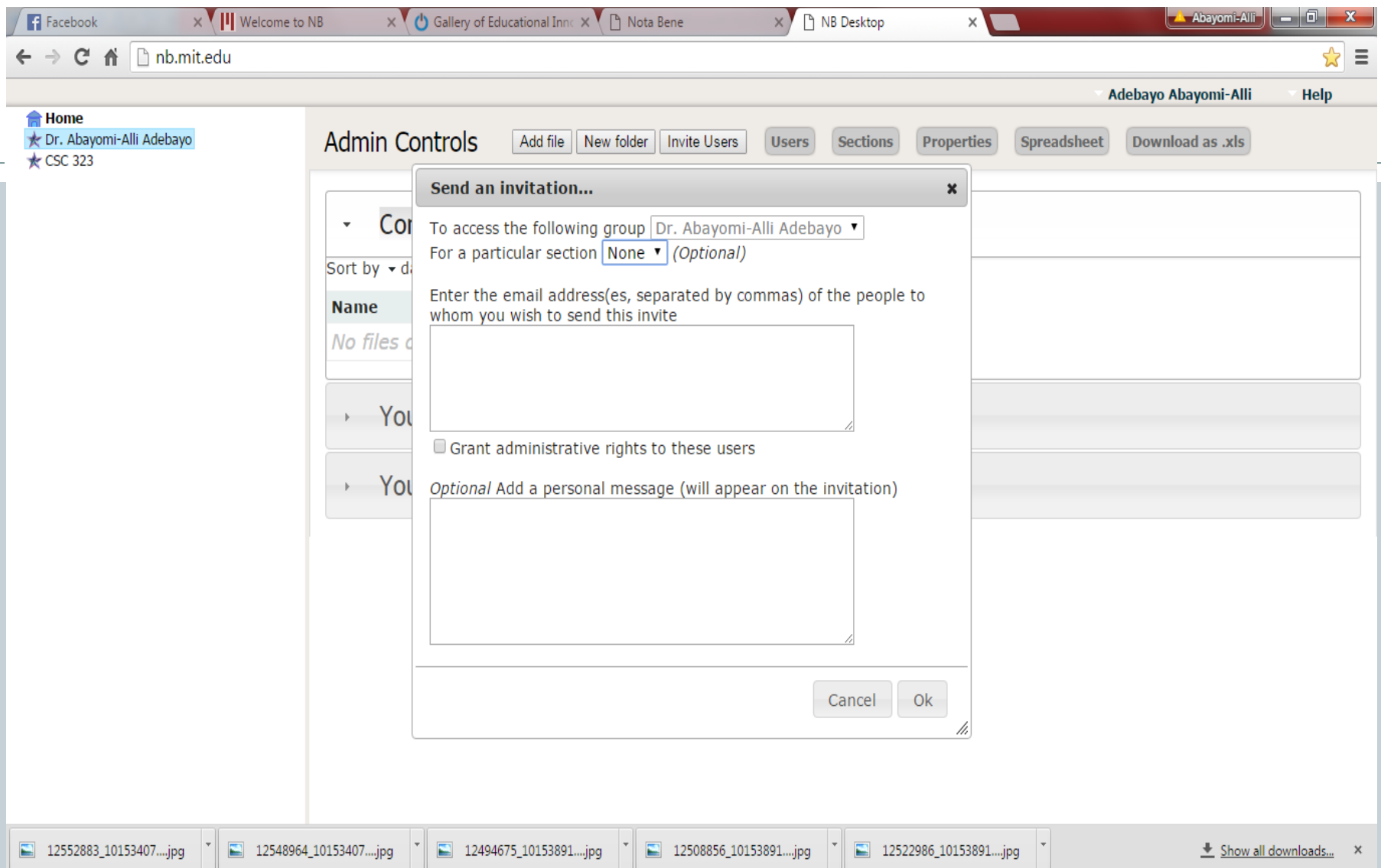


Figure 9: Send class invitations using student's emails

nb

Sign Up / Log in

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## Users of CSC 323

### 4 registered users

The following users have fully registered: Either by accepting an invite or by [using the class' subscribe link and confirming their email]

First Name	Last Name	Email	Role	Section	Actions
Oluwaseyi	Oyeneyin	folorunsoo@funaab.edu.ng	student	No Section	<a href="#">Delete</a> <a href="#">Add staff status</a>
Olusegun	Adeosun	adeosunoe@funaab.edu.ng	student	No Section	<a href="#">Delete</a> <a href="#">Add staff status</a>
SODIQ	ONALAPO	onaolapos@funaab.edu.ng	student	No Section	<a href="#">Delete</a> <a href="#">Add staff status</a>
Adebayo	Abayomi-Alli	abayomiallia@funaab.edu.ng	staff	No Section	<a href="#">Delete</a> <a href="#">Remove staff status</a>

### 1 pending invitations

The following users have been sent an invite but haven't yet replied to it. If you notice that the invite has been sent a long time ago, it might a good idea to check if you have the correct email for those users or ask them to check their spam folders (NB invites sometimes get blocked by spam programs)

Email	Role	Section
erinfoamia@funaab.edu.ng	student	

12552883\_10153407...jpg 12548964\_10153407...jpg 12494675\_10153891...jpg 12508856\_10153891...jpg 12522986\_10153891...jpg

Show all downloads

Figure 10: View the class registered users

# MEMBERSHIPS (Cont'd)

30

**Q: Can a student be removed from a class?**

- A: Yes. Click on users, then delete the user.

**Q: Can a student be given the staff access?**

- A: Yes.

Just change the student's status to staff.

# MANAGING CLASSES AND FILES

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**Q: Can NB annotate anything besides PDFs?**

- A: Yes, NB can also be used for annotating HTML documents and YouTube videos.
- Other file types may be printed to PDF using commands like Export to PDF or simply Print.

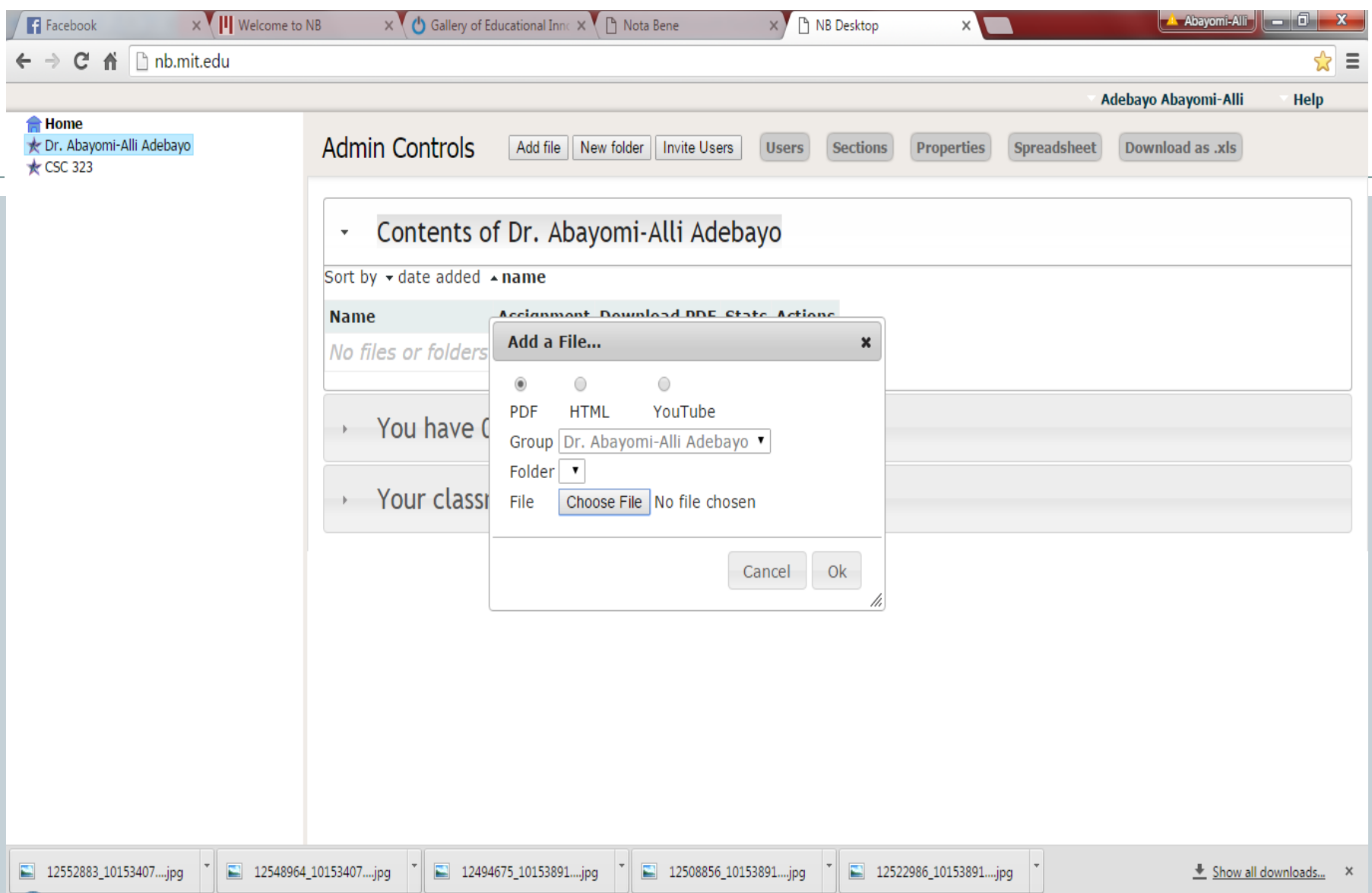


Figure 11: Adding PDF, HTML or Video file



# MANAGING CLASSES AND FILES (Cont'd)

33

**Q: How do I delete a file from the class list?**

- A: Once you're logged in, right-click on that file's name and select "Delete".

**Q: Can I remove comments from a file if they're not mine?**

- A: Not currently.

**Q: Can I give reading assignments to my students?**

- A: Yes.

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nb.mit.edu

Adebayo Abayomi-Alli Help

Home  
 ☆ Dr. Abayomi-Alli Adebayo  
 ☆ CSC 323

Admin Controls Add file New folder Invite Users Users Sections Properties Spreadsheet Download as .xls

Contents of CSC 323

Sort by

Name

Is this file an assignment ? Yes ☒ No ☐ No

Due on 01/15/2016 at 05:03

Cancel Ok

Download PDF Stats Actions

Download PDF	Stats	Actions
original	me 1	unread 3
annotated	all 3	Actions Analytics

12552883\_10153407...jpg 12548964\_10153407...jpg 12494675\_10153891...jpg 12508856\_10153891...jpg 12522986\_10153891...jpg Show all downloads...

Figure 12: Setting up a reading assignment for students

# MANAGING CLASSES AND FILES (Cont'd)

35

**Q: Is it possible to download the annotated PDFs?**

- A: It's possible to download the annotated PDF if you have admin rights to the NB class that contains that PDF.

**Q: Is it possible to filter the threads and get statistics or information about threads and discussions?**

- A: Yes it is possible. Click on more filters.

students' online learning conversations.

### SYSTEM DESCRIPTION

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Users can choose whether their comments are visible to everyone in the class (the default), only to themselves, or only to themselves. The comment can be anonymous (the default) or have the author's name. A comment has been saved, its author can edit it as long as there hasn't been a reply. Users can also set properties (visibility, anonymity). Users can also filter comments with the following tags: *Favorites*, *I disagree*, and *Reply requested*.

<sup>3</sup>We have found that general comments are rarely used, and do not discuss them further.

shows that total number of comments submitted in the top 15 classes. 13 of these classes received more comments than the maximum (415) captured in any usage of Stellar, MIT's forum tool. The top five each collected more comments than the top 50 classes using Stellar combined (3275).

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Mathematics for CS (*)	3270	34
UI Design and Implementation (*)	2703	61
Signals and Systems	1996	39

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Nb is a collaborative annotation tool for learning. It targets students reading lecture notes and draft textbooks. When used correctly NB increases participation and reading rates; Highlights trouble spots; Allows students to see what their peers think prior to the class session; It serves as a discussion forum in the document margins; NB lets students ask questions from their lecture notes while reading and get or provide feedback in real-time.

Adebayo Abayomi-Alli — 22 Jan, 10:27PM

2 threads

me 2 ★ 0 ? 1 more filters

2 threads on page 1

2 i me what is the full meaning of NB

2 i me ? how does this work?

1 thread on page 3

1 i me if you choose myself only, it means the student is simply just mak...

**Filter Threads...**

Show me 10 threads that have the most responses that have the most student participation that have the longest initial post randomly

Go Cancel

page 3

12552883\_10153407...jpg 12548964\_10153407...jpg 12494675\_10153891...jpg 12508856\_10153891...jpg 12522986\_10153891...jpg Show all downloads...

Figure 13: Filter threads for more information

# TROUBLESHOOTING

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**Q: How can I get help with an NB-related question?**

• **A:**

- First, check if your question on FAQ section on NB site.
- Not there? Visit NB forum at <http://nbproject.vanillaforums.com/categories/users>
- As a last resort, you can contact NB: [team@csail.mit.edu](mailto:team@csail.mit.edu) (note: you will likely get a much faster response if you use the NB forum).

# TROUBLESHOOTING (Cont'd)

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**Q: Nothing shows up on the main screen and none of the links work?**

- **A: Are you a compatible browser? Currently NB works with the following browsers:**
  - Firefox
  - Safari
  - Chrome
  - Internet Explorer 9 or more recent. If you're using NB on any of these browser and NB still doesn't work, please visit the NB forum.

# TROUBLESHOOTING (Cont'd)

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Q: Is my information secure? What gets stored where?  
What about privacy?

• A:

- NB stores your annotations on an SQL database located on campus.
- There are 3 visibility settings for your notes:
  - ✦ The Entire Class, meaning that both students and staff can see the notes.
  - ✦ Staff only, meaning those notes can be seen by the staff. Note that some NB sites might not allow Staff only notes.
  - ✦ Myself only notes are private: Staff and other students can't see them

# TROUBLESHOOTING (Cont'd)

40

**Q: Can I use NB for my research in online educational tools?**

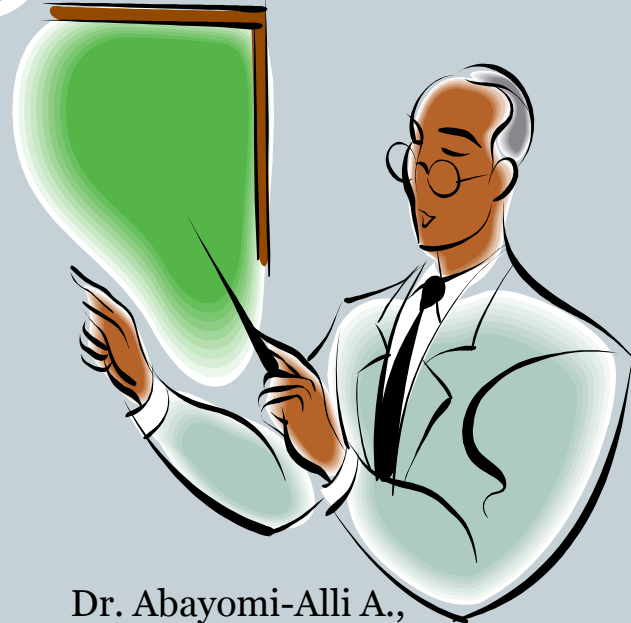
- A: Yes. NB was initially developed for research purposes, and was made open-source under a MIT license so that it can be used and modified in order not to have to reinvent the wheel if you need to deploy an annotation tool.

A paper about how students and faculty used NB was been published at CHI 2012:

[http://groups.csail.mit.edu/haystack/documents/papers/2012/nb\\_chi2012.pdf](http://groups.csail.mit.edu/haystack/documents/papers/2012/nb_chi2012.pdf)



# Thanks for Listening



Dr. Abayomi-Alli A.,  
Dept. of Computer Science, FUNAAB, Abeokuta.  
Email: [abayomiallia@funaab.edu.ng](mailto:abayomiallia@funaab.edu.ng)