



Graphical User  
Interface for  
Floor Plan  
Visualization  
at Allegheny  
College

CeCe Colón

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# Graphical User Interface for Floor Plan Visualization at Allegheny College

CeCe Colón

November 20, 2017



# Motivation

Graphical User  
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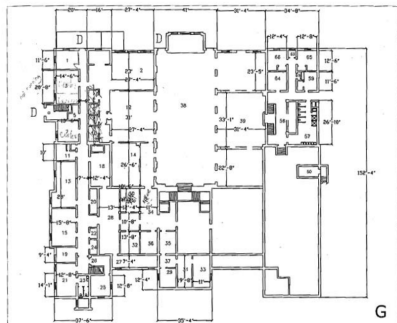
Why SVG?

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- Current Availability



BROOKS



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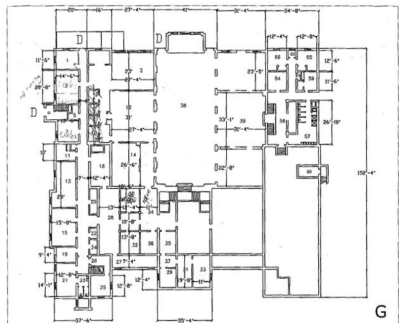
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- Current Availability
- Data and information Visualization



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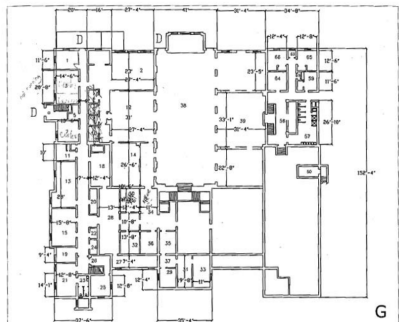
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- Current Availability
- Data and information Visualization
- Branding



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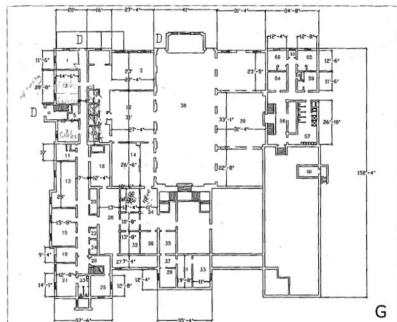
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- Branding
  - New Applications



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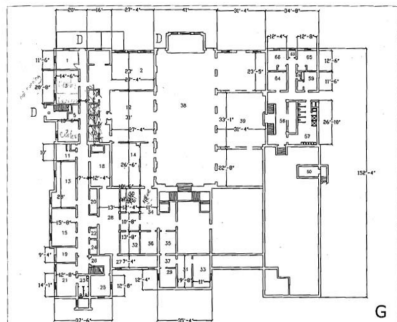
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  - New Applications
  - Retention



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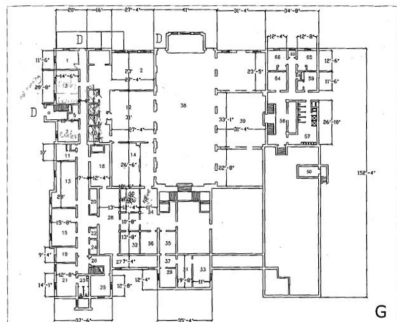
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- Branding
  - New Applications
  - Retention
- Rooming Information



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- Graphical User Interface





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- Interactivity



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- Graphical User Interface
- Interactivity
- SVG 2D floor plans



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- Graphical User Interface
- Interactivity
- SVG 2D floor plans
- Goals



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- Graphical User Interface
- Interactivity
- SVG 2D floor plans
- Goals
  - CLARITY and VISIBILITY



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- SVG 2D floor plans
- Goals
  - CLARITY and VISIBILITY
  - Display relevant information



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- Goals
  - CLARITY and VISIBILITY
  - Display relevant information
  - Useful to different offices



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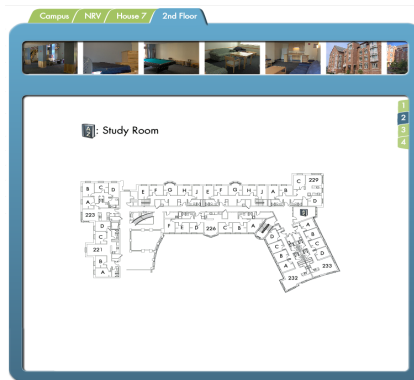
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- Paid Programs





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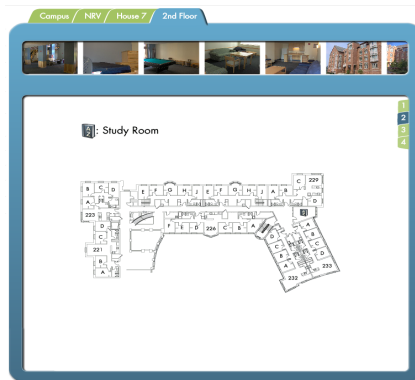
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- Paid Programs
  - Campus Bird <http://map.allegheny.edu/>







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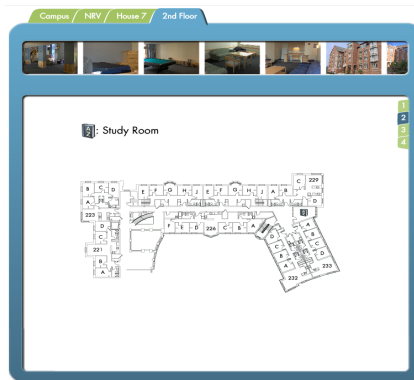
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- Paid Programs
  - Campus Bird <http://map.allegheny.edu/>
  - nuCloud





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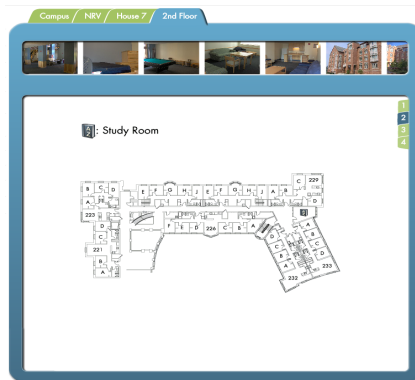
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- Paid Programs
  - Campus Bird <http://map.allegheny.edu/>
  - nuCloud
- SVG country maps





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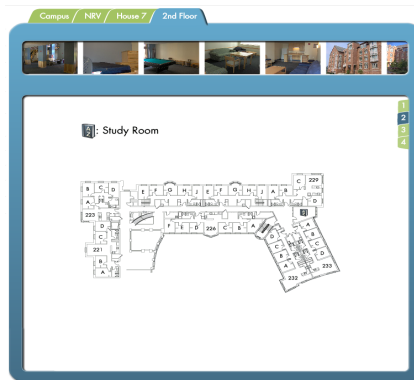
Why SVG?

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- Paid Programs
  - Campus Bird <http://map.allegheny.edu/>
  - nuCloud
- SVG country maps
- University Created Floor Plans





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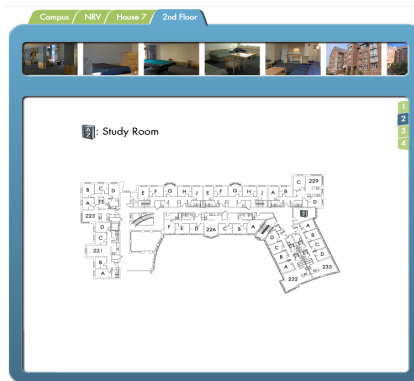
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- Paid Programs
  - Campus Bird <http://map.allegheny.edu/>
  - nuCloud
- SVG country maps
- University Created Floor Plans
  - **Case Western**





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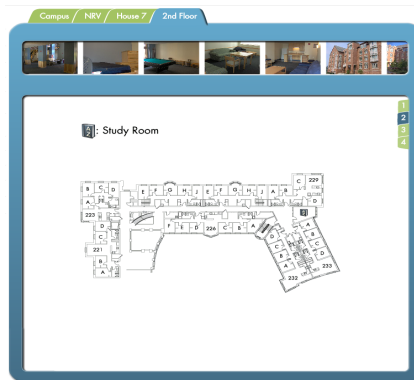
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- Paid Programs
  - Campus Bird <http://map.allegheny.edu/>
  - nuCloud
- SVG country maps
- University Created Floor Plans
  - **Case Western**
  - Rochester Institute of Technology





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- Convert current Floorplans to SVG graphics



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  - Adobe Illustrator



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- Convert current Floorplans to SVG graphics
  - Adobe Illustrator
  - Inkscape





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- Convert current Floorplans to SVG graphics
  - Adobe Illustrator
  - Inkscape
- SVG code editing



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- Convert current Floorplans to SVG graphics
  - Adobe Illustrator
  - Inkscape
- SVG code editing
- Adding Interactivity



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- Convert current Floorplans to SVG graphics
  - Adobe Illustrator
  - Inkscape
- SVG code editing
- Adding Interactivity
  - JavaScript



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- Convert current Floorplans to SVG graphics
  - Adobe Illustrator
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- Adding Interactivity
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- Convert current Floorplans to SVG graphics
  - Adobe Illustrator
  - Inkscape
- SVG code editing
- Adding Interactivity
  - JavaScript
  - HTML
- Displaying all information in a fluid way



# SVG vs Everything Else

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50x50 bitmap



50x50 SVG



Bitmap scaled to 150x150



SVG scaled to 150x150



- XML-based vector graphic



# SVG vs Everything Else

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50x50 bitmap



50x50 SVG



Bitmap scaled to 150x150



SVG scaled to 150x150



- XML-based vector graphic
  - Compatible with HTML, JavaScript (jQuery), and CSS



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50x50 bitmap



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SVG scaled to 150x150



- XML-based vector graphic
  - Compatible with HTML, JavaScript (jQuery), and CSS
- Scripting interactivity





# SVG vs Everything Else

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50x50 bitmap



50x50 SVG



Bitmap scaled to 150x150



SVG scaled to 150x150



- XML-based vector graphic
  - Compatible with HTML, JavaScript (jQuery), and CSS
- Scripting interactivity
- D3.js, Snap.js, Raphael.js



# SVG vs Everything Else

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50x50 bitmap



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Bitmap scaled to 150x150



SVG scaled to 150x150



- XML-based vector graphic
  - Compatible with HTML, JavaScript (jQuery), and CSS
- Scripting interactivity
- D3.js, Snap.js, Raphael.js
- No resolution limits



# SVG vs Everything Else

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50x50 bitmap



50x50 SVG



Bitmap scaled to 150x150



SVG scaled to 150x150



- XML-based vector graphic
  - Compatible with HTML, JavaScript (jQuery), and CSS
- Scripting interactivity
- D3.js, Snap.js, Raphael.js
- No resolution limits
- Faster load times



# Evaluation Strategy

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- Manual Testing



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- Manual Testing
- System Usability Scale (SUS)



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- Manual Testing
- System Usability Scale (SUS)
  - Standardized method of evaluation



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- Manual Testing
- System Usability Scale (SUS)
  - Standardized method of evaluation
- Self Created Questionnaire



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- Manual Testing
- System Usability Scale (SUS)
  - Standardized method of evaluation
- Self Created Questionnaire
  - Specific feedback in context for Allegheny





# Other Considerations

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- Institutional Review Board Form
  - Focus Group and Surveys to determine included information
  - Survey for post floor plan evaluations

Task	Begin Date	End Date
Chapter 1 and 2 final draft	20 Nov	12 Dec
Collecting original floor plans	12 Dec	20 Dec
Creating SVG images	20 Dec	15 Jan
Interactivity for SVG	15 Jan	15 Feb
Building Program Framework	15 Feb	15 March
Evaluation/Debugging	15 March	5 April
Final draft for edits	1 April	20 April
Edits	20 April	27 April
Final, bound copy submitted	27 April	1 May



# Future Work - Extended Applications

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- Pelletier Library



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- Pelletier Library
  - Stacks layout



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- Pelletier Library
  - Stacks layout
  - Study Rooms



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  - Stacks layout
  - Study Rooms
  - Public Computer Locations



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  - Study Rooms
  - Public Computer Locations
- Campus Programming Spaces



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  - Stacks layout
  - Study Rooms
  - Public Computer Locations
- Campus Programming Spaces
  - Campus Center



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  - Study Rooms
  - Public Computer Locations
- Campus Programming Spaces
  - Campus Center
  - Shultz





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  - Campus Center
  - Shultz
  - Tippie