# Product Analysis of Google Docs

Product Description

Google Docs is a free web-based word processor with essential tools for creating and editing documents. It also allows for powerful real-time collaboration between group members to edit documents simultaneously.

Some of the basic features that it incorporates are customizable fonts, **bold**/*italics*/underline capabilities, a highlighter feature, inserting images, modifying line spacing and paragraph alignments, and creating numbered/bulleted lists. These features are just a few that are common among products similar to Google Docs, such as Microsoft Word and LibreOffice Writer, but it also has features which make it unique.

Google Docs allows a single document to be worked on simultaneously

by multiple users and even allows them to enter into a group-chat for collaborative discussion. Docs has a plethora of tools which make it a familiar word processor, while also hosting a suite of unique collaborative features which set it apart from its competition.
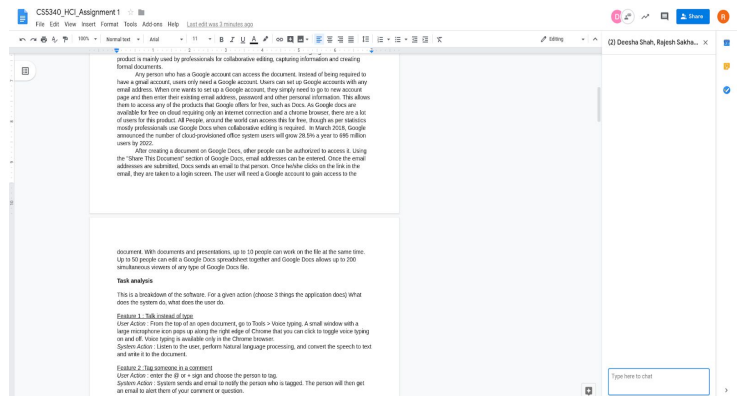
User Analysis

This product can be used by any person who can talk or write in any language supported by google. The user need to have a basic understanding of how to use a computer and the internet. If user has a chrome browser installed then he/she can utilize all the features of google docs. This product is mainly used by professionals for collaborative editing, capturing information and creating formal documents.

Any person who has a Google account can access the document. Instead of being required to have a gmail account, users only need a Google account. Users can set up Google accounts with any email address. When one wants to set up a Google account, they simply need to go to new account page and then enter their existing email address, password and other personal information. This allows them to access any of the products that Google offers for free, such as Docs. As Google docs are available for free on cloud requiring only an internet connection and a chrome browser, there are a lot of users for this product. All People, around the world can access this for free, though as per statistics mostly professionals use Google Docs when collaborative editing is required. In March 2018, Google announced the number of cloud-provisioned office system users will grow 28.5% a year to 695 million users by 2022.

After creating a document on Google Docs, other people can be authorized to access it. Using the "Share This Document" section of Google Docs, email addresses can be entered. Once the email addresses are submitted, Docs sends an email to that person. Once he/she clicks on the link in the email, they are taken to a login screen. The user will need a Google account to gain access to the document. With documents and presentations, up to 10 people can work on the file at the same time. Up to 50 people can edit a Google Docs spreadsheet together and Google Docs allows up to 200 simultaneous viewers of any type of Google Docs file.

Task analysis

Feature 1 : Speech recognition instead of typing
User Action : From the top of an open document, go to Tools > Voice typing. A small window with a large microphone icon pops up along the right edge of Chrome that you can click to toggle voice typing on and off. Voice typing is available only in the Chrome browser.

System Action : Listen to the user, perform Natural language processing, and convert the speech to text and write it to the document.

Feature 2 :Tag a person in a comment
User Action : enter the @ or + sign and choose the person to tag.
System Action : System sends and email to notify the person who is tagged. The person will then get an email to alert them of your comment or question.

Feature 3 : Right-click for research
Case 1 :
User Action : To look up the definition of a word on the quick, right-click on the word and choose Define.
System Action : A small panel appears to the right of your document with the definition of the word, along with synonyms, letting you get information without leaving Google Docs.
Case 2 :
User Action : right-click on a word and choose Research to perform a quick Google search in the right-panel.
System Action : Research will perform a quick Google search in the right-panel. Any links you click will open in a new tab, but you can drag images from the search results from the right panel directly into your document.

Context, Situations and Environment

1. *Taking lecture notes and meeting notes*: Students can take lecture notes in real-time while attending a class. With features such as tables, equations, image insertion and a lot more offered by google docs, the notes can be structured in an easy to read way. As Google docs are stored on Google Drive, searching for the notes will become much simpler. While referring to those notes, the Google Docs Research Tool which enables us to know more about a phrase by highlighting it and clicking on the tool turns out to be very handy.

2. *Resume Creation:* Google docs provides a wide variety of resume templates to choose from. Thus, if someone wants to create a resume in a very short amount of time, Google docs may be the best to use. With the various tools offered, one can easily modify the template to suit their needs.

3. *Working with team members simultaneously* - One major feature of Docs is that a lot of people can work on a single document simultaneously. Thus, students use it to work on group assignments. Each person works on their part and at the same time review their teammates work. For group projects, ideas can be brainstormed and reports can be written. Each team member can complete his portion of the work at a time convenient to them, which saves time in arranging in-person meetings.

4. *Team collaboration* - A lot of companies use Google Docs for team collaboration. Be it brainstorming ideas or assigning tasks, Google Docs is a great tool to share information within teams. There is no need to keep track of the several versions of the document. Also, the document can be reverted back to one of the older versions. The auto-save feature allows the data to be up-to-date. Team members can add feedback within the content of the document and can discuss the piece of text within the comments thread.

5. *Bloggers, Writers* - Bloggers and writers create content using Docs. It becomes easier for them to format the content, share with collaborators and collect feedback. They can easily track the count of words and enable real-time spell-checking using the tools offered by docs.

6. *Creating a newsletter* - The marketing team within companies use Google Docs to create newsletters and brochures. Using page format and text-align, the document can be arranged in any format that is needed. Links and images can be added very easily within Google docs.

7. *Lab Reports* - Scientists or lab practitioners can use Google docs to note interesting findings while doing experiments and even create lab reports.

Conceptual Design

The key components and objects (presented to the user).
1. *Title Box* - On the top left of a Google Doc, users can see a title box. By clicking on this title box, the box changes to an editable text-box and the user can change the title of the document. When someone creates a

new document, the title is by default set as 'Untitled document'. The user can modify it to any title that he/she wishes to keep.

2. *Chat* - When at least one person is editing or viewing the document at the same time as another user is, the user is able to see who that person is by hovering over the letter icon that appears. Also, clicking on the icon opens a chat box where the users can do real time chatting.

3. *Share Button* - On the top right of the app, there exists a share button. The purpose of this is to let users share the document to someone else. When this share button is clicked, a pop up appears. In this pop-up the user can choose to do two things
   a. Add the email addresses of all the people that the user wants to share the document with.
   b. Create a shareable link of the document. Any person who has access to this link, will be able to open the document.
   Before sharing the document, the user give specific access rights to different other users like:
   ● Edit - with this right, other users will be able to edit and read the document
   ● Read only - other users will only be able to read the document.
   ● Comment only - the other users will be able to just comment on the document.

4. *The Toolbar* - The toolbar contains a set of actions that the user can perform on the document and a set of tools that can be used. Let us look at each menu option in detail:

File	The file menu lets the user handle actions related to the document. ● Using the download option, the user can save the document in a variety of file formats ● The user can email the document without having to open gmail. ● The user can customize the orientation and margins of the page ● The language of the document can be specified ● Using the print option, the document can be printed instantly
Edit	The edit menu contains options to perform certain edit operations on the document ● User can undo or redo an action ● The user can cut, copy, paste, select all content using this menu ● The user can find certain text and replace that text with something else.
View	Using the View option the user can control what all components that he wants to view on the document while he/she is working on it. The user can also set the mode (Edit, suggest, view) in which he wishes to see the document
Insert	This menu has options to insert elements into the document ● A user can insert images in a variety of ways like from the web, their computer, google photos, url, etc. The user can also choose to click a picture from the webcam. ● A table can be inserted using the table option with desired number of rows and columns. ● Visuals like bar graphs and charts can be imported. ● External links, special characters, equations can be added in the document.
Format	The content on the document like the text, tables, etc can be formatted using the Format menu ● The user can add headers & footers to the document. ● The line spacing between words can be adjusted. ● New rows and columns can be added to the existing table. ● Text can be aligned to the left, right, center of justified ● A user can create bullets and numbering with different shapes
Tools	The tools menu contain certain automated tasks to fasten their document creation ● A user can enable to spelling and grammar option. This option highlights words that contain spelling errors in real-time while the user is editing. ● The word count of a certain piece of text can be determined ● This menu also contains the voice typing option to let users create content using their voice. ● The document can be translated to a different language using the translate option
Add-ons	The add-ons menu contains the options the import and manage add-ons for their document.
Help	Using the help menu, a user can

	● Read documentation of google docs, report a problem or a bug & view keyboard shortcuts

5. *Version indicator* - Next to the end of all the items in the toolbar, there is a version indicator where the real-time status of the document is displayed. The user can see, who edited the document recently, is the current version saved, etc. Clicking on the indicator lets the user sees the different revision history of what was changed, added, or deleted.

6. *Frequent Access Toolbar* - The frequent access toolbar gives access to frequently used commands. This saves time of the user in navigating through the menu bar to access that command. Some of the commands that the users can quickly access is:
   a. Undo, Redo, Print, Spelling & grammar checking, paint format
   b. Adjusting the proportion of the document visible on the screen, changing the style of the text like the font-type, font-size, font-color, font-highlight, making it bold, italic, underline.
   c. Insert link, add comment, insert image, align text, adjust line spacing.
   d. Add bullets, change bullet styles, add ordered lists, increase decrease indent.

7. *The document* - The major part that user sees while working on Google Docs is the document. It resembles a white sheet of paper and is the place where the user creates content. Once a page has been filled, a new page is automatically added below the current page. The content that a user writes is auto-saved by Docs.

8. *Ruler* - The ruler is a horizontal and a vertical line running across the display. It is used for marking & setting the margins and tabs between different components. The display of this ruler can be turned on/off.

Consistency in common actions across multiple objects.

● Actions like copy paste works for text as well as images, tables and links. These actions behave the same way irrespective of the object on which it is applied.
● The delete action works for multiple objects on the document consistently.

Design metaphor

Design metaphors are used frequently in Google Docs. The metaphors appear to be clearly thought out and used to convey the functionality of various features in the software.

● Docs uses simple image icons to convey what various buttons do, without the user having to try them or mouse over them. Some examples include:

   ○ Print button: which is an image of a printer. This button brings up the browser's default print menu, as would be easily inferred by the user to be its function.
   ○ Paint format button: is an image of a paint roller. This button allows formatting from one area of the Doc to be applied anywhere the user selects. While not as clear as other buttons, once the user tries the feature, the "Paint roller" image can easily be associated with its functionality.
   ○ Insert Image button: looks like a simplified painting/picture of 2 mountains. This button leads to a dropdown menu that allows the user to upload an image from various sources to the Doc. This metaphor of an "image" makes a lot of sense for the user to access a menu that allows uploading of image files. However, it could easily be confused (unless previously used) with a menu for manipulating or modifying images in the Doc.
   ○ Show chat button: looks like a person with a speech bubble. This button opens a group chat with all currently online members collaborating on the document. The image of a person speaking is a good metaphor for this feature because it implies communication.

● Docs also uses a metaphor in the way the user interacts with the document page itself. Rather than just be a pure text editor, the text appears on an image of a piece of paper proportional to a typical 8.5inx11in letter size printer paper. This is an excellent metaphor for how the page will look if printed, and allows the user(s) to modify the Doc with the knowledge of where each object/text/image is on the page.

- The ruler showing the length and width of pages at the top and left sides of the document, is a metaphor for a real ruler. This is another excellent metaphor, because these documents can be accessed on a variety of platforms/screen sizes and this allows a uniform understanding of page size and formatting no matter where the document is viewed from.

Design critique

1. Offline mode editing: Google Docs can download documents to the hard drive for further editing, but this does require another word processor to open (like Word). If you want to do your writing within Google Docs but without using the cloud, your best option is to enable offline mode in Google Docs, go offline, and edit the document that way, which seems like too much hassle to be practical.
   Google Docs can download documents to the hard drive for further editing, but this does require another word processor to open (like Word, for instance!). If you want to do your writing within Google Docs but without using the cloud, your best option is to enable offline mode in Google Docs, go offline, and edit the document that way, which seems like too much hassle to be practical.
2. Although you can import almost any document to Google Docs, sometimes important details like font or format are changed and requires editing after the import. Unlike Microsoft Word you can not add fonts or templates so you might not be able to format your document exactly as you would like.

Design improvements

1. Google Docs desktop software that can be used to edit documents offline without the use of a browser might solve the problem of offline editing. This software should also be able to sync with the user's Google account at the user's request for seamless integration.
2. It might not be possible to allow users to upload their own fonts and templates as Google Docs is a cloud based application. If they were to increase the number of fonts and templates available it could make importing a document easier with less editing required after.

Future testing

1. A desktop client for Google Docs could be tested by going through each feature in Google Docs and using them all on documents in offline mode and afterwards syncing them to the user's account. All of the documents should then be viewed checked to make sure they are identical to the documents as created in the desktop client. If they are, then this would indicate that the desktop client is working as intended. This would solve the problem of the impractical "offline mode" currently available in Google Docs.
2. In order to test how effective increasing the amount of fonts and templates is, a user could try to import a set amount of files (100, 500, etc) all with different formats and see how many of them would require editing after importing.

Conclusion

As evident by the amount of users, Google Docs is a well designed product with many great features that are very intuitive if you are familiar with other word processing programs. Although it is mostly used by professionals for collaborating on documents, it is also a good free word processing program for people who do not want to pay for their word processing software. There might not be as many options as other word processors and its offline settings might not be ideal but its ease of use and ability to allow multiple people to collaborate simultaneously make it a very popular application that will surely continue to grow in the future.

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