

Be creative, try to build on the ideas given here to make a better, more original project!

## Games

Many the two player games would be a more interesting project if you make a one player version with artificial intelligence (not as hard as it sounds).

- [Ultimate Tic Tac Toe](#) or [Quantum Tic Tac Toe](#), or some other interesting/complicated variant of tic tac toe
- [Chain Reaction](#)
- Chess or Checkers
- Tetris and Minesweeper
- Crossword creator/game
- Sudoku autosolver
- Rubik's cube autosolver (output steps to solve)

## Utilities

- Guitar tuner
- Moodle Sync: Syncs files from Moodle (possibly also news forum). [HTMLParser](#) might be useful
- Scientific Calculator: Try to give this some unique features
- Graphing calculator
- Integrator and differentiator (using numerical methods)
- Download manager, like IDM

## Idea stubs

These are incomplete/vague ideas that you can build upon to make your own project idea:

- Something with image processing. Make an app that does face recognition, motion detection, etc. Example: An app that converts a photo of a piece of paper (where the paper is usually misaligned and at an angled) to a photo of the same piece of paper, perfectly aligned.
- Something that syncs files somewhere
- Some sort of management app that lets you manage a lot of information. Example: library management app, with ability for customers to check out books
- Something that interfaces a well known protocol (email app, DC++ app, torrent app, ZIP compression, MP3 tagger, etc)
- Something that encrypts something

## Misc

- Make your own browser, using a Webkit Webview for displaying the webpage
- Make a toy browser engine that can display a simple HTML webpage. Use [HTMLParser](#)
- Chat application

- Mini-google: Make a web crawler to find new web pages based on old ones. Add a search function. (This can be limited to IITB sites to make it reasonable to run)
- CS101 automated code checker: This is similar to what is actually used for your CS101 lab submissions. It's a program that can be given a question (may have multiple parts), test cases, and example code and also a student's attempt for the program. It will run the program and test if it is correct. Add security measures to prevent the program being run from doing anything malicious.
- Extend simplecpp package to allow 3D drawing, similar to the `perspective` command in MSW-LOGO

## Open Source

These are real issues with real software, and will be a challenge to work with, but a rewarding experience if you do so. Acceptance of your code into the main codebase is not necessary for grading, though it is encouraged that you try to get your code in there.

An important thing to remember here is to not be afraid of asking for help. Most of the people in the communities will be happy to help you.

Many of these projects are much more than what is expected as a CS101 project; and some of them are from the Summer of Code ideas pages. However, they can be simplified (discuss with the mentor or someone on the team)

Contact Manish if you need more help understanding or working on these, or if you have a different software you wish to work on. (Even better, find out something you wish to improve in a software you use and improve it!)

- Thunderbird: [Support open source formats for Thunderbird sounds](#). You will need to bind to a sound library that can decode .ogg files
- Firefox: [Add support for JPEG-XR](#). This requires writing a whole image decoding library. This is too much to be expected from a student project, however it would be interesting if you can make a toy implementation.
- Firefox: [Implement SVG focusable attribute](#): There already is a patch here, but it is out of date. Try to write this on your own taking occasional help from your mentor or the existing patch
- Minecraft-Server: [Implement an SSL filter class](#)
- Minecraft-Server: [Implement written books](#)
- Amarok: [Improve Amarok context menu](#) (bug is pretty simple, but it can be expanded on)
- OpenCV: [Add ability to serve video stream](#)
- KStars: [Improve deep-sky handling](#)
- Facebook HHVM: [Add support for ranges in if](#)
- Debian: [Improve configuration upgrade mechanism](#)
- LibreOffice: [Improve label positioning algorithm in charts](#)
- LibreOffice: Improve autorotation in charts (same link)
- LibreOffice: [Improve color selection](#)

**Graphics libraries:**

- SimpleCPP: Easy to use library designed for students
- [GTK](#)
- [QT](#)
- [Allegro](#) (for games)