

my VIRTUAL ITEM REQUISITION UPGRADE SIMULATOR

CS201 Final Project

Ada Toydemir, Harry Wang, Jason Yik,
Jean Hsu, Lauren Shen, Nick Chen



Our project

A bitcoin mining virus hidden in the install files of a game

We combined our diverse interests and skills into a single project idea.



Outside Topics

Game Programming

UI/UX Design

Linux Environments

Binary Analysis

Cyber Security

UDP Networking

Cryptocurrency

Blockchain

Technologies Used

Website

- ⬡ HTML
- ⬡ CSS
- ⬡ Javascript
- ⬡ AJAX

Backend

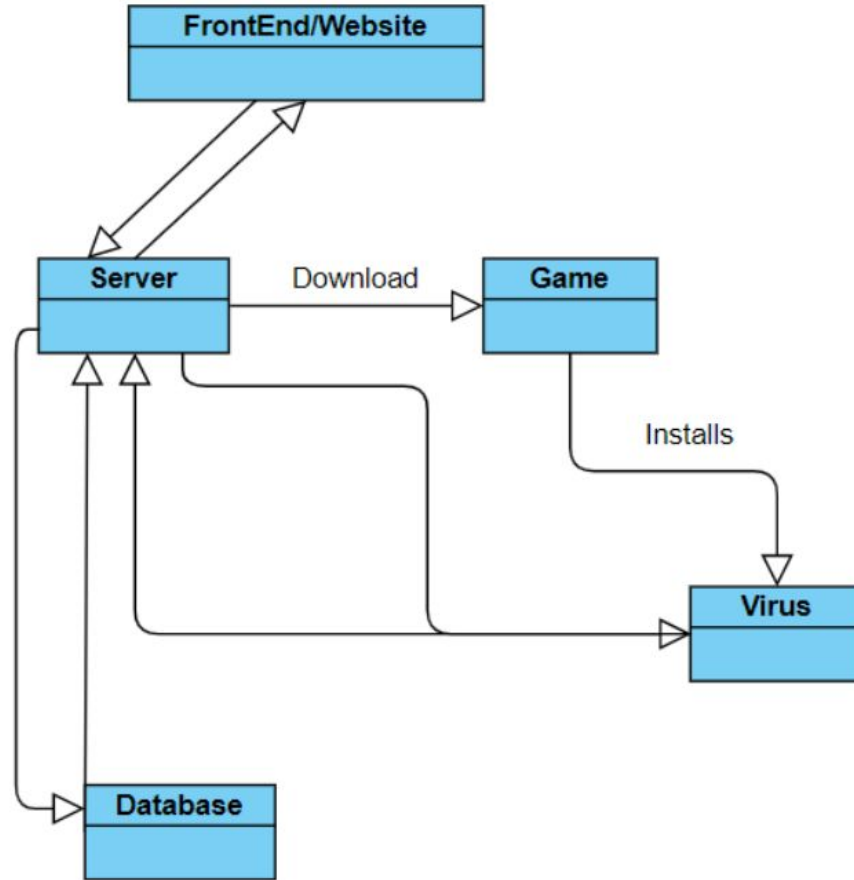
- ⬡ Google Cloud SQL
- ⬡ Java
- ⬡ AppEngine
- ⬡ Compute Engine

Game

- ⬡ C++
- ⬡ OpenGL
- ⬡ Opus
- ⬡ MSBuild
- ⬡ Photoshop
- ⬡ Cmake

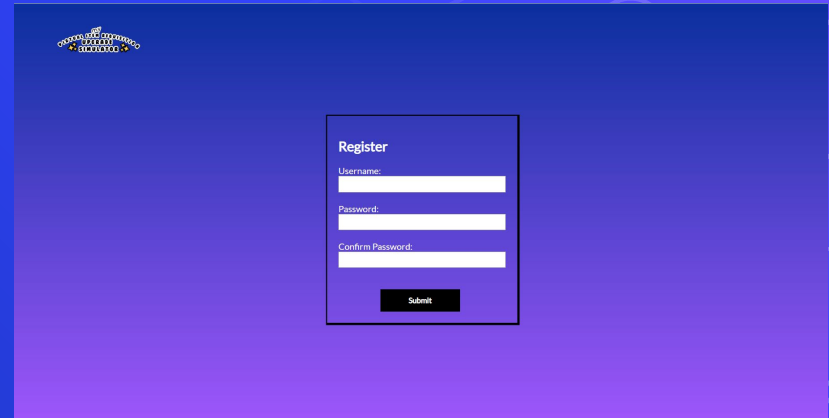
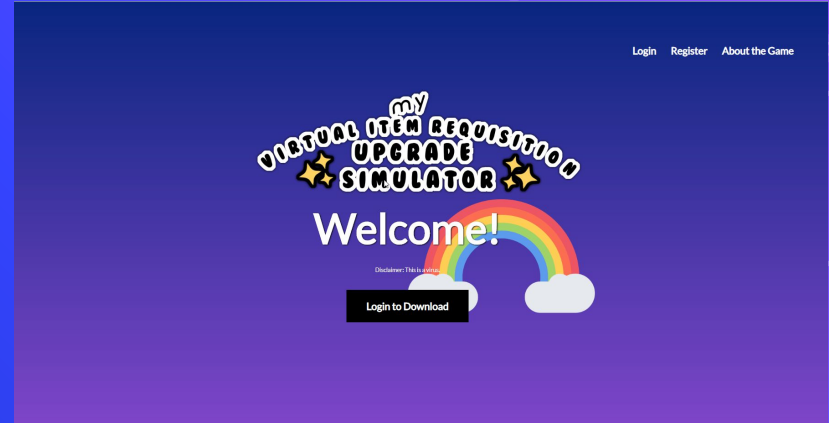
Virus

- ⬡ Python
- ⬡ C
- ⬡ Cmake



Website

- Platform for:
 - Reading About the Game
 - Registering and Logging in
 - Downloading Game/Virus
 - Viewing Bitcoin Mining Statistics (admin only)



Backend

- **UDP Server**

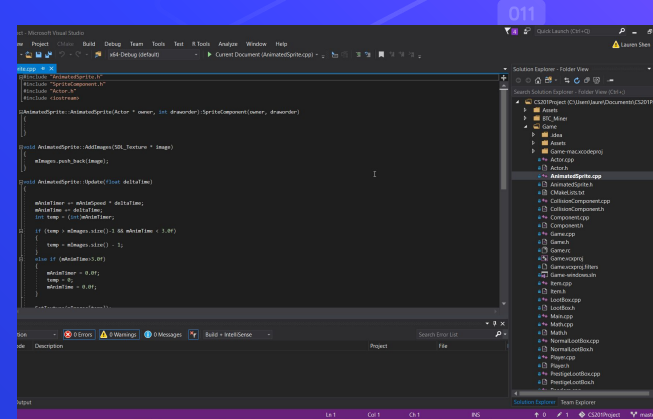
- Receives Packets from Miner
- Spawns a Thread for Each Packet
- Uses JDBC to Insert Hashing Data into the Database

- **Website Servlets**

- Uses JDBC to Validate Login and to Generate Statistics Page

Game

- Carrier Game for the Virus
- Very simple game similar to Cookie Clicker
- Click Work to Start Playing!



Virus

- Linked to Thread.h
- Thread Calls Bitcoin Miner Before Ending

```
76 void
77 thread::detach()
78 {
79     int ec = EINVAL;
80     if (!__libc_thread_isnull(&t_))
81     {
82         ec = __libc_thread_detach(&t_);
83         if (ec == 0)
84             t_ = _LIBCPP_NULL_THREAD;
85     }
86
87     if (ec)
88         __throw_system_error(ec, "thread::detach failed");
89 }
90
91 unsigned
92 thread::hardware_concurrency() _NOEXCEPT
93 {
94     #if defined(CTL_HW) && defined(HW_HCPU)
95         unsigned n;
96         int mib[2] = {CTL_HW, HW_HCPU};
97         std::size_t s = sizeof(n);
98         systctl(mib, 2, &n, 0, 0);
99         return n;
100     #elif defined(_SC_NPROCESSORS_ONLN)
101         long result = sysconf(_SC_NPROCESSORS_ONLN);
102         // sysconf returns -1 if the name is invalid, the option does not exist or
103         // does not have a definite limit.
104         // if sysconf returns some other negative number, we have no idea
105         // what is going on. Default to something safe.
106         if (result < 0)
107             return 0;
108         return static_cast<unsigned>(result);
109     #elif defined(_LIBCPP_MIN32API)
110         SVSTEN_INFO info;
111         GetSystemInfo(&info);
112         return info.dwNumberOfWorkers;
113     #else // defined(CTL_HW) && defined(HW_HCPU)
```

```
22:57:52.829725 IP 104.16.54.3.https > debian.44426: Flags [P.], seq 5548:6939,
ack 749, win 31, length 1391
E...ZV@.6...h.6...zu...B>:c...P.....j...`...!...J...I...I...c.pK<2.)vh..
; N. a...lo5...59W...?....W.jQ..h...))0.u...m...n.w.$.<..>..w.[.x.
..r..Y;....[p..b..".S.T40f...9..%~...u...U...:..k...T...~Kg...[.x.
.V...B.]...B.]...#.$=...a.f...3R.*r..1.X$*..LN.M8...K/.7phL..Xjk.U.g.<.\a
yUuT.....B.Z.v.e..EM2.q.z.ua%.....%p1.4..K...Z...g....U...{
...i...I...GK.7..5...^.....$f...>.....h...*:..b..W.p....v..i.
.1.N.nu...X...^H".I...6.W{...=.....Qt...x.F...+/y...dIn.0u...:
aM.....1..8u...s...L"...Xd..p.0.....X0..j..!..@.....5..A.0.....
...oR...o.w..Z;.....[.E[...{q..}.a\.....I.....]h.Y.iB...0.q....I..C
...Y..QVe...%LY;...DA..{...'.?..JAX.....#2HH..C.....t.&...!E.%..0.AV.
...|.V..W.HoJ..ir...L...Mv;5L5.../Y`...SYJ...F..>.....["8.....S8
...)(...($P..ne.?..#JJ;...3.#W^...m..H4^..Kyd...#...(...)"...".8.....S
...x.83b.z....\k;...R.rt..2)v..T..R.x....|...}...e/...C.#m...b...S8.
...Y.T.\g./...15..).T.4....T.N]y83...'.J.{..g...@Q...zv#...d>...r.
.(A...S
.....8H.t...0x.Za,"{.....$ .....{...}.....d....(.Yq..?k.#.....)LD@.
...;?X.&...h.7g./!...0..8.x^...8(.....f..EF...Qa=..0k>)+1S.....i;5
V...v...).L5)...x9..c?KW.%...a..#...|.....t.....uR,w
...[...u"9G^..U7...Kx..mV...3\..c"...!...o[B.....z...M.sD.l...u].S
22:57:52.832075 IP 104.16.54.3.https > debian.44426: Flags [P.], seq 15285:16032,
ack 749, win 31, length 747
```

Data Structures

Game

- C++ Map
- C++ Vector
- C++ Array

Server

- Java Byte Array

Miner

- Python Dictionary

Multithreading

Website

- AJAX

Server

- UDP Threads

Virus

- Miner Thread

Networking

Server accepts UDP (User Datagram Protocol) packets from the miner with hash data.

The server is hosted on Google Cloud Compute Engine with address /34.94.185.60:42069, and the website is hosted on Google App Engine

Login Functionality

Normal users need to register and login before downloading the game.

Admin users can login to view the mining statistics.

Other Courses Referenced

ITP 380

Video Game
Programming

CTIN 488

Game Design
Workshop

CSCI 430

Computer
Security

CSCI 104

Data
Structures

EE 250

Distributed
Systems

WRIT 150

Writing

Project Design

What Worked

- Able to include everyone's interest
- Reduced Project scope without cutting anyone out
- Interesting and novel idea

What didn't work

- Plan was originally too ambitious
- Stubborn to our original idea, making it more difficult

Teamwork

What Worked

- Diverse Interests and skills
- Respectful Members
- Individuals took responsibility

What didn't work

- Indecisiveness from divisive ideas
- Scheduling

Demo Time!

myvir.us



DEMO ORDERING

Website - click around, register, normal login, download page

Jean

Game - show how it's played

Lauren

Miner script

Nick / Ada

Virus - show stuff

Harry

Back to Website - Statistics page with admin login

Jason

Instructions for use

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Hello!

I am Jayden Smith

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You can find me at @username





“Quotations are commonly printed as a means of inspiration and to invoke philosophical thoughts from the reader.

This is a slide title

- ⬡ Here you have a list of items
- ⬡ And some text
- ⬡ But remember not to overload your slides with content

Your audience will listen to you or read the content, but won't do both.

You can also split your content

White

Is the color of milk and fresh snow, the color produced by the combination of all the colors of the visible spectrum.

Black

Is the color of coal, ebony, and of outer space. It is the darkest color, the result of the absence of or complete absorption of light.

In two or three columns

Yellow

Is the color of gold, butter and ripe lemons. In the spectrum of visible light, yellow is found between green and orange.

Blue

Is the colour of the clear sky and the deep sea. It is located between violet and green on the optical spectrum.

Red

Is the color of blood, and because of this it has historically been associated with sacrifice, danger and courage.

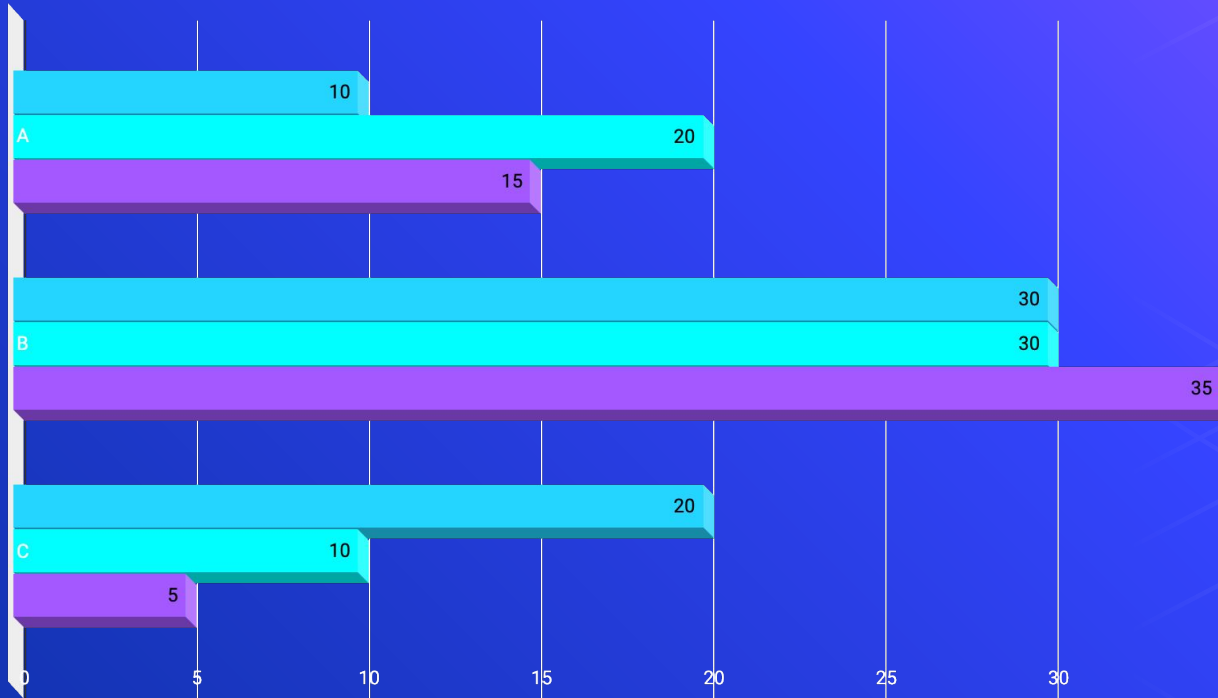
A picture is worth a thousand words

A complex idea can be conveyed with just a single still image, namely making it possible to absorb large amounts of data quickly.



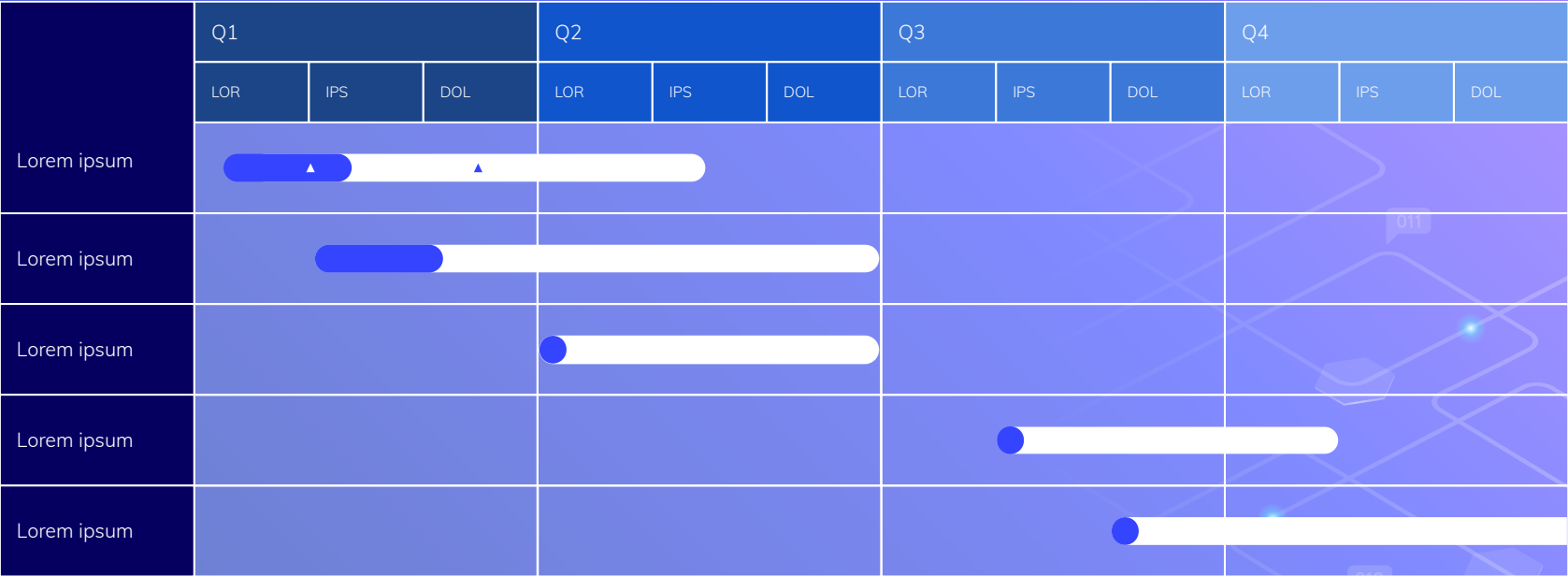
Want big impact?
Use big image.





You can insert graphs from [Google Sheets](#)

Use diagrams to explain your ideas



▲ LOREM

And tables to compare data

	A	B	C
Yellow	10	20	7
Blue	30	15	10
Orange	5	24	16

Maps



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89,526,124

Whoa! That's a big number, aren't you proud?



89,526,124\$

That's a lot of money

185,244 users

And a lot of users

100%

Total success!

Our process is easy



Let's review some concepts

Yellow

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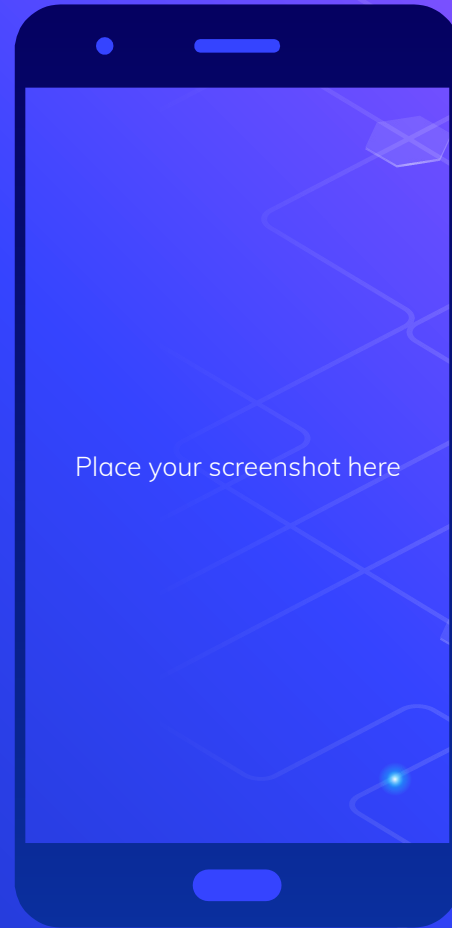
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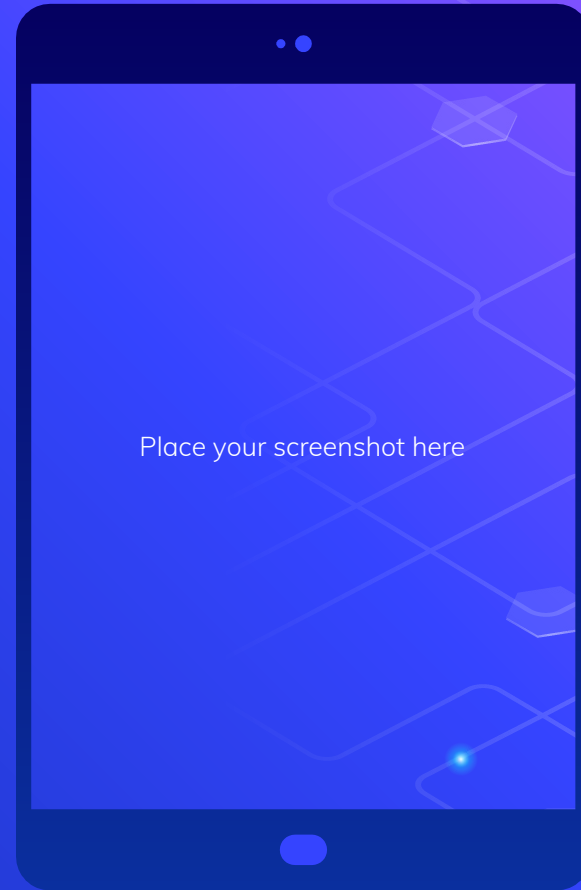
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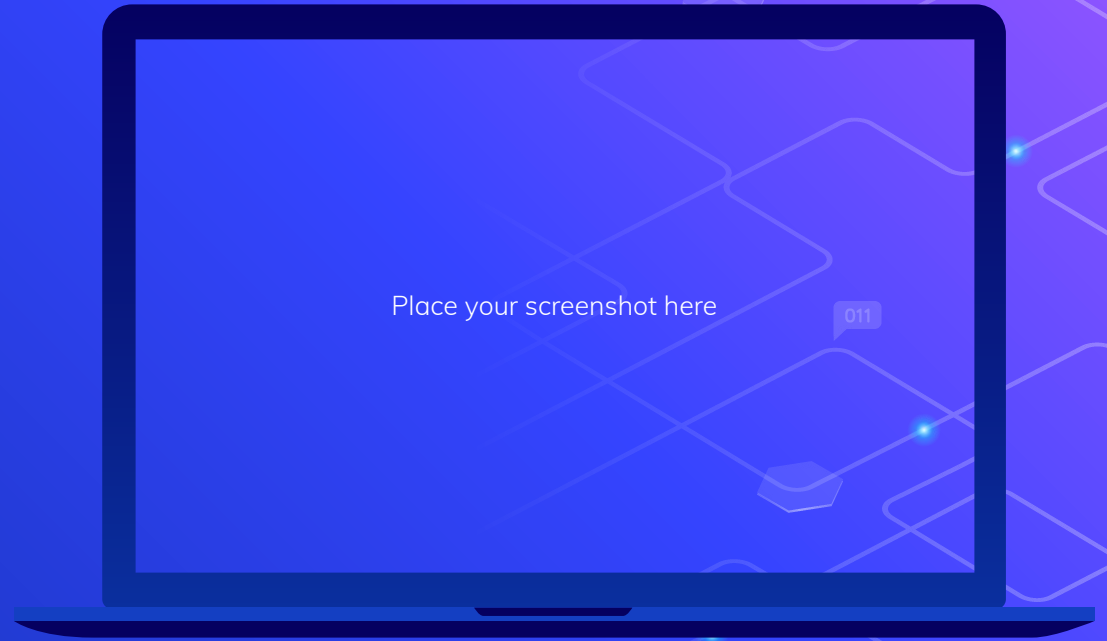
Tablet project

Show and explain your web, app or software projects using these gadget templates.



Desktop project

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Thanks!

Any questions?

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Extra resources





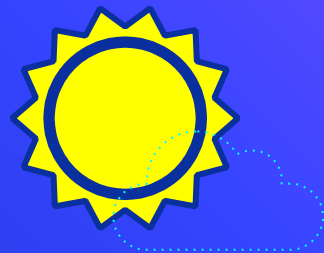
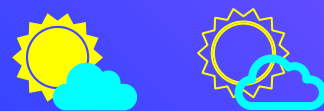
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And of course it resizes without losing quality.

How? Follow Google instructions

<https://twitter.com/googledocs/status/730087240156643328>



and many more...