Winning Instructions

Code Your Story: Session 8

Hacking

The OG meaning of hacking was all about doing impossible things with computers: fixing unfixable things or having systems do things they were never designed for.

Hacking, continued

- **Smartphones:** a specifically crafted piece of audio, picture, video, or even text can bring things down
- **Flash drives:** they can be programmed to act like a secret keyboard, which can then wreak all kinds of havoc
- **Toys:** toys connected to the internet (drones, smart dolls, etc.) can leak all kinds of information
- **Appliances:** same as toys!
- **Cars:** some of the newer cars are connected to cell networks and can be controlled remotely

Hacking, continued

To ensure tight security, consider these two points that also work for games:

- **You need to master all of the different conditions and how they tie into the algorithms**
- **You need to be able to respond to all the different user inputs/choices**

Defend the Room! — The Scenario

It's Saturday morning and you're working on an incredible secret project for your mom (it's her birthday!). You have to leave your house for an hour to finish it which normally wouldn't be a problem, but your cousins (the Hatts) are in town and you're in charge of keeping them entertained.

Your goals are:

- Make sure your mom has a great birthday
- Keep your project a secret, which means that your mom can't know you're gone and she can't see the project in your bedroom

Defend the Room! — The Scenario

You *do* have a very low-tech security system—your youngest cousin, Bob, who's 7. He'll do exactly what you tell him (kind of like a computer) but he'll freak out if he has to improvise or encounters any situation that he doesn't have instructions for.

You're putting Bob in charge of keeping your mom out of your room and hiding the fact that you're one. Basically, you're writing an algorithm for him to follow.

Be careful about what you ask him to do—if your mom gets too suspicious, she can just march right into your room and ruin the surprise.

Defend the Room! — Round 0

You have 15 minutes to write your Defense the Room! algorithm for Bob. Make sure you cover all the possible scenarios! You can craft this with if statements, flowcharts, or whatever you like.

A really bad example:
*Tell my mom that I'm home and everything's okay and she definitely shouldn't go into my room
*IF she believes you
    *THEN do nothing. You're done.
      *ELSE, IF she seems puzzled, confused, or asks a question, THEN scream, "PLEASE, PLEASE, PLEASE, WHATEVER YOU DO, DON'T GO IN THERE!"

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Defend the Room! — Round 1

You're just about to give Bob the plan and leave when you wonder if you should get a second opinion. After all, people who are serious about their security systems do this: they call in the good-guy hackers, known as white hats, to look for holes in their systems before they get used.

You decide to get in touch with your older cousins, the White-Hatts, who are out this morning with your dad (your partners are the White-Hatts). Take a few minutes to independently think of at least one scenario that you don't think has been covered by the algorithm.

Defend the Room! — Round 1

A great example:
*Your mom decides to make waffles and she yells that they're ready. Bob *loves* waffles (as do you!). What will he do in this situation? How will your mom react when you don't come downstairs for waffles?

Defend the Room! — Round 1

Go around in your group and share your scenario.

For every algorithm their scenario breaks, they get 1 point.

And for every scenario their algorithm survives, you get 1 point.

After you finish tallying up your scores, spend the next 5-10 minutes updating your algorithm, using what you've learned.

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Defend the Room! — Round 2

You've covered the possible weaknesses in your Bob-based security and you're feeling pretty good about accomplishing your goals, so you finally leave. You probably don't even stop to think about any malicious actors (in the real world, these people are the bad hackers, the black hats). And then, you kick yourself: you totally forgot about your cousin Mallory.

Mallory's a year older than you and clever. She's not actually malicious—more mischievous. Sometimes, it's a lot of fun, but this probably isn't one of those times. If she already doesn't know something is up, she'll know soon: Bob is her little brother and she can always tell when he's up to something. She'll probably want to see if she can spoil your surprise somehow!

Defend the Room! — Round 2

Take a few minutes to think about how Mallory might attack your system.

For example:
*Mallory tells your mom that she can't find you. She could also tell your mom that you've left the house, but that's not sneaky enough to be her style.

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Defend the Room! — Round 2

Take another few minutes and exchange your Mallory attacks with a partner.

If your attack succeeds, you get 5 points.

If your system is able to repel Mallory's attack, you get 10 points.

Update your algorithms accordingly!

Defend the Room! — Round 3

While you're out, Mallory texts you: she almost broke down Bob but she decided to let it go at the last minute (she just wanted to know that she could break it if she wanted to, in typical Mallory fashion). You thank her and continue finishing up your errand.

But then she texts, "Grandma's here btw" and you pause. Bob might have been able to convince your mom that everything was fine, but there's no way that your grandma's not going to notice that you're not there. Or is there?

If anyone's algorithm survives this scenario, you get 20 points.