# Homework--VMware Workstation Player

Virtual Machines (VMs) allow us to install different operating systems and create lab environments. If you are going to use a VM you first need to install a [Hypervisor](https://www.howtogeek.com/66734/htg-explains-what-is-a-hypervisor/). If you are using a computer in our SVGS classroom, the SVGS image has a hypervisor already installed for us. We will use VMware Workstation Player, which is available free for academic use. Other hypervisors are Oracle [VirtualBox](https://www.virtualbox.org/), [Microsoft Hyper-V](https://docs.microsoft.com/en-us/virtualization/hyper-v-on-windows/about/), and [Xen](https://www.xenproject.org/).

With a lab of VMs, we can use several different OSs at once without disturbing the OS that is installed on our hardware. For example, if you want to learn about Windows servers and Domain Controllers, you can install a network of VMs and see how they work. We can practice with security tools by having our VMs scan and attack each other, without causing problems on our regular networks. We can also examine malware in a safe environment using VMs. Once we are done, we can either erase the VM we have infected with malware or restore the VM to its original condition.

## Required Reading

Read the PowerPoint slides for this class, Virtual Machines.pptx

Read one of the following articles about hypervisors and virtual machines.

<https://en.wikipedia.org/wiki/Hypervisor>  
or  
<https://www.howtogeek.com/66734/htg-explains-what-is-a-hypervisor/>   
or  
<https://searchservervirtualization.techtarget.com/definition/hypervisor>

Then read one of the following articles about containers.

<https://www.freecodecamp.org/news/a-beginner-friendly-introduction-to-containers-vms-and-docker-79a9e3e119b/>  
or  
<https://www.flexiant.com/2015/05/08/containers-vs-hypervisors-and-other-considerations/>  
or  
<https://www.electronicdesign.com/dev-tools/what-s-difference-between-containers-and-virtual-machines>

## At Home

If you wish to install VMware Workstation Player at home or on your laptop, it is available [here](https://www.vmware.com/products/workstation-player/workstation-player-evaluation.html). The web site talks about purchasing Workstation Player, but the installer should allow you to bypass licensing by affirming that you will use the product for academic purposes. If you wish to buy Workstation Pro, [academic discounts are available](https://store-us.vmware.com/vmware-in-education?Action%3Dhtml%26SiteID%3Dvmware%26pbPage%3DAcademicLandingPage). I recommend trying the free version first, however.

## Hand In

1. Is our hypervisor (VMware Workstation Player) a Type 1 or Type 2 hypervisor? Why?
2. What are some advantages of using virtual machines or containers?
3. What is a fundamental difference between a virtual machine and a container?