

computer science hw

tony (zekang lin)

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WHAT DOES THIS CODE DO?

this is the code that can calculate moving velocity(which is the speed/per second), maximum height, and the time the process of the throwing object, then give the answer in a full sentence.

this process will be even faster than 1 second

THE CODE

```
a=-9.8
v0=19.6
y0=10.0
dt=0.01
t=0.0

ymax=0.0

v=v0
y=y0

while y>0.0:
    t=t+dt
    v=v+a*dt
    y=y+v*dt
    if y > ymax:
        ymax=y

print "the number is "+str(t)+" sec"
```

first line of code stated some equation that will be calculated in the next few line of codes, such as $a=-9.8$, which means the initial velocity is -9.8

y_{max} =the maximum height the object can get

this is when this code start to calculate, because $dt=0.01$, it can get two numbers after the decimal point, while $v+a$ and $y+v$ calculate the height after the object being thrown having the velocity which is -9.8

finally, after the calculation, it will print the final answer within a full sentence

```
print "the final velocity is "+ str(v)+" meter/sec"  
print "the maximum height is "+str(ymax)+" meter"
```

```
the number is 4.45 sec  
the final velocity is -24.01 meter/sec  
the maximum height is 29.502 meter
```

This is the output of my program.