

Python Packet #3:

“If” you “Loop” It They Will Come?

Operator Sign	Operator Name
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to
==	Equal to
!=	Not equal to

Key Idea:

- Using Conditional Statements
- Using while True Loops and For X in Y Loops

Before you solve these problems watch the following videos. Make sure you code along!

[Video #1: How Much Cash Is That?](#)

[Video #2: Savings](#)

[Video #3: Lonely Boy Duck Duck Goose...](#)

[Video #4: As if](#)

Scoring:

You need a minimum of 70 experience points to move on from this packet. How you choose to achieve that task is entirely up to you.

100 Points: A+

90 Points: A

80 Points: B

70 Points: C

Below 70 Points: F



Challenge #1:

The first problem in this packet involves guessing an old man's age. Have the user take guesses and the script should tell the user if they were too high or too low (create your own message). Track the number of guesses the user inputted. When they finally get the correct answer you should print a screen that tells them something to the effect "Congrats it took you ___" guesses.

+10
Experience
Points

Challenge #2:

Video Example

I want you to make a clock that keeps track of days, hours, minutes, and seconds. Test it by having it go faster than an average clock.

```
The current time
Days: 5 Hours: 2 Minutes: 46 Seconds: 30
The current time
Days: 5 Hours: 2 Minutes: 46 Seconds: 31
The current time
Days: 5 Hours: 2 Minutes: 46 Seconds: 32
The current time
Days: 5 Hours: 2 Minutes: 46 Seconds: 33
The current time
Days: 5 Hours: 2 Minutes: 46 Seconds: 34
The current time
Days: 5 Hours: 2 Minutes: 46 Seconds: 35
The current time
Days: 5 Hours: 2 Minutes: 46 Seconds: 36
The current time
Days: 5 Hours: 2 Minutes: 46 Seconds: 37
The current time
Days: 5 Hours: 2 Minutes: 46 Seconds: 38
The current time
Days: 5 Hours: 2 Minutes: 46 Seconds: 39
```





Challenge #3: Get a destination from the user and the miles to that destination. Using the equation ***time = distance/speed*** and a ***“for x in range(0,?) loop”*** tell the user the time with would take them to reach their destination if they travel at 5 mph, 10 mph, 15 mph, ... 100 mph. [Video example.](#)

+20
*Experience
Points*

+30
*Experience
Points*

Challenge #4: The Mystery Box Challenge. We got a mystery program crushes us in this game. Your job is to recreate it!



Here it is:

[MYSTERY BOX CHALLENGE.](#)



Challenge #5: Did you know you can approximate the distance you can see out on the ocean? Simple actually, just take the square root of your height in feet then multiply by 1.2 to get the distance in miles.

+20
*Experience
Points*

I need you to make a program that takes in the distance they want to see. Then, by changing the height each time by 1, arrive at the height they would need to be above sea level to achieve a horizon of that given distance.

Finally, include a section at the end where you determine if the final height is taller than a human, giraffe, or the Empire State building. Note, if it requires 100 feet it should ONLY tell you it is taller than a giraffe, not both a human and a giraffe, that would be redundant...

[Video Example](#)

+30
*Experience
Points*

Theoretically, if you created a program that could beat the dealer in blackjack you could run that script across 1000

games and reap wealth beyond your wildest dreams. So what better way to spend the day than making that program? I have included a block of code above. This code will generate a random hand of blackjack.

```
## Random Hand generator  
import random  
yourhand = random.randint(2, 21)
```

Challenge #6: [Video Example](#)

- 1) Create a set of rules that will tell the program to either "hit" or "stay". The program should automatically keep going until it "goes bust" or is high enough to where you programmed it to stop.
- 2) Now repeat that process for the dealer. Note: the dealer always hits on a 16 or lower.
- 3) Determine a winner. I would use if and elif to make this as simple as possible.
- 4) At the very end, place this whole process in a loop to run 1000 games. Tally up all of the wins, losses and ties. Those three numbers must add to 1000 or you are missing game results.



+10
*Experience
Points*

Challenge #7:

Take this entire packet and place it in a loop. Press '1' to play your first challenge, press '2' for the second challenge, etc. Have a press '0' for quit as well.



Challenge #8 Investing: If you are smart, then you will someday invest. The good thing about investing is that your money is your “employee” making you more every single day. On average the stock market returns about 8% as profit for you! Let’s run some numbers and see what we can figure out.

+30
*Experience
Points*

Your Goal:

- 1) Get from the user how much they want to contribute every month. Then ask them how many months they would like to simulate.
- 2) Every month add their contribution to the total and multiply the total by $1.00 + 1/12$ of 8% (which is 1.0067). Print their new total each month.
- 3) Once all the months have run tell the user their new total, their total contributions(money they invested) and their total earnings in the market (the money they made in the stock market).

[Here is an example if you need!](#)