

Tay Zhi Hui's Portfolio

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Online CTF – started from my 1st year

Capture The Flag as known as CTF is a cyber security competition which require contestants to find their way to get the hidden data (flag) in a file or a system. The first time CTF come across me is when my senior asked me whether I am interested in something which not in the course syllabus. I joined those online CTF and learned lots of knowledge in cyber security. Besides, I am also trained to think creatively and logically. The picture below is one of the questions I find interesting as it required me to learn a new programming language called Rockstar. I need to understand the program code written in the Rockstar programming language and I need to reverse the program and find the hidden flag. Attached are some captures of the question.

Tommy is a Certified Rockstar Developer! That means he can code in the [rockstar](#) programming language .

I've known him for years but last week I saw him dealing with some shady, cultist-y people, exchanging numbers and dates. Just last night, I saw him working on some program called [ritual.rock](#). He typed in a number I couldn't see, then the number 1337. The program gave the output 'November 18.' The thing is, November 18th is my favorite day and 1337 is my second favorite number. If the first number he put in is my favorite, I think Tommy here might be a bit of a stalker. And I don't want a cowboy from ram ranch following me around.

Capture of question

```
Void takes Something
Everything is a disposable, invariable, unoriginal expression
Nothingness is nothing
While Something is not Nothingness and Nothingness is less than Everything
Build Nothingness up

Give back Nothingness

The Earth takes Life and Death
Until Death is stronger than Life
Put Life without Death into Life

Give back Life

His Reincarnation takes my soul and your blood
His Life is nothing
While my soul is as high as your blood
Put my soul without your blood into my soul
Build His Life up

Give back His Life

Listen to your whispers
Put Void taking them into Ice
Listen to your screams
Put Void taking them into Fire
Energy is ki
Put Energy without Energy into Ashes
Put Energy over Energy into Potential
While Ice is stronger than nothing or Fire is stronger than nothing
Put The Earth taking Ice and Energy into Wind
Put The Earth taking Fire and Energy into Earth
Put His Reincarnation taking Ice and Energy into Ice
Put His Reincarnation taking Fire and Energy into Fire
if Wind is stronger than Earth or Earth is stronger than Wind
Put Ashes with Potential into Ashes

Put Potential of Energy into Potential

His Heart was 'n us
Put His Reincarnation taking Ashes and His Heart into Space
Put The Earth taking Ashes and His Heart into Flow
Put "Mysterious " into Time
if Flow is 1
Put "January " into Time
```

Capture of part of program code in rockstar language

```
#The Earth
def modules(a1, a2):
    while(a2 <= a1):
        a1 = a1 - a2
    return a1

#His Reincarnation
def div(a1, a2):
    a = 0
    while(a1 >= a2):
        a1 = a1 - a2
        a+=1
    return a

ii = 0
while(ii<10000):
    i = ii
    j = 1337
    energy = 2;
    ashes = 0;
    potential = 1

    while(i>0 or j>0):
        m1 = modules(i, energy)
        m2 = modules(j, energy)
        i = div(i, energy)
        j = div(j, energy)

        if(m1>m2 or m2>m1):
            ashes = ashes + potential
            potential = potential * energy

    hh = 12
    space = div(ashes, hh)
    flow = modules(ashes, hh)

    if(space == 18 and flow == 11):
        print("Answer is ", ii)
```

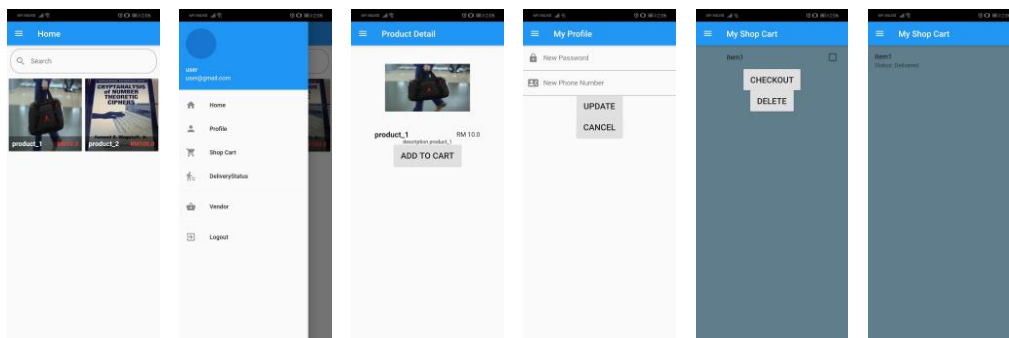
Capture of part of my program code

```
C:\Users\Asus\Python>py testrock.py
Answer is 1498
```

Capture of solved answer

Application Development Course Project – 2019

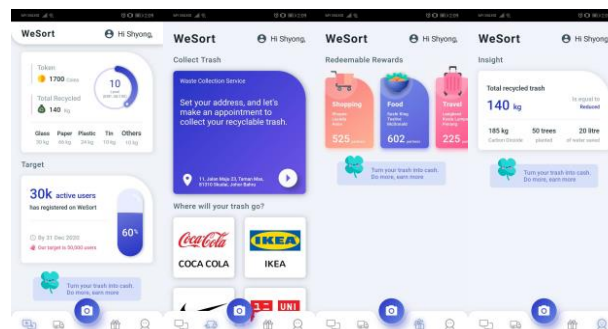
The course project requires me and my 3 other team member to build a mobile application named JomGift. It is basically about the same as other online shopping apps with the additional function of gifting the items to others. We are using flutter and dart language to code our apps and I am in charge of the frontend part and code everything from scratch. The project eventually gets an A- due to the backend was not working. Attached is some captures of JomGift.



Captures of JomGift

WTUN Student Competition - 2020

World Technology Universities Network as known as WTUN, is organizing a student competition, which the participating team should use Digital Creativity to address one of the WTUN's chosen United Nation Sustainable Development Goals. My team had proposed an idea on the goal Sustainable Cities and Communities, by connecting the crowds and industry to achieve the goal. We made an mobile application prototype named WeSort to cope with our idea. The apk file of WeSort can be downloaded from <https://wesortapp.org>. Attached is some captures of WeSort.



Captures of WeSort