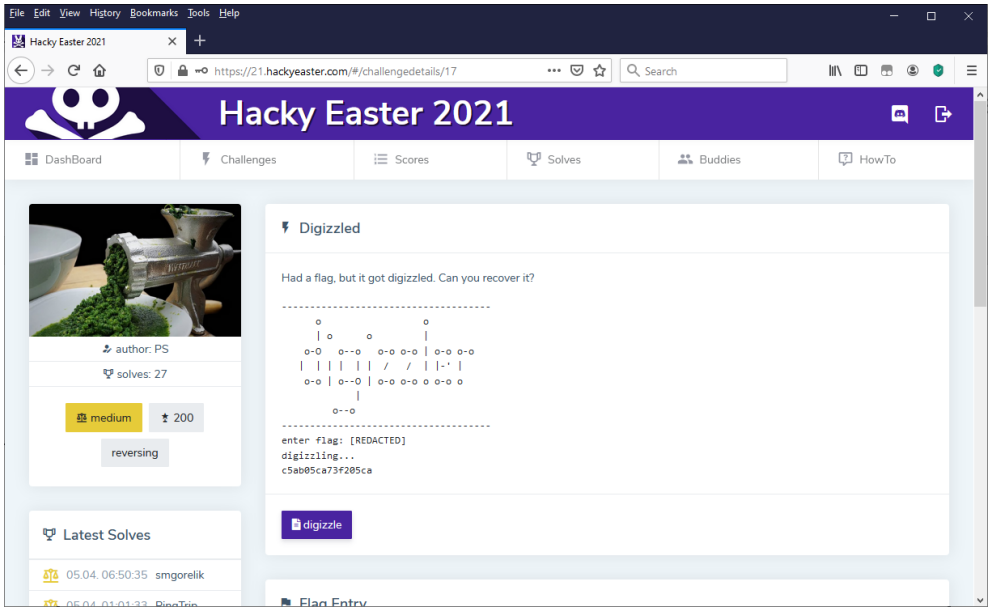
Hacky Easter 2021

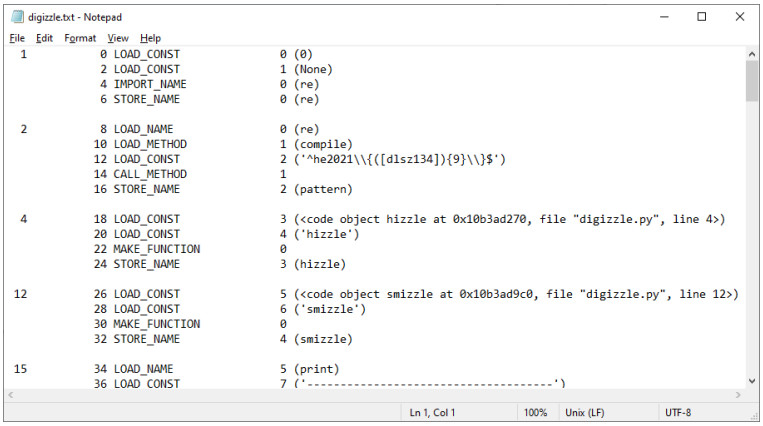
Digizzled

1. Click the **Digizzled** image:



2. Click the **digizzle** button and then click the **OK** button, to download the digizzle.txt file.

3. Start Notepad and the open the digizzle.txt file:



4. Create a Python script, digizzle.py, using the contents of the digizzle.txt file:

```
import re
pattern = re.compile('^he2021\\{([dlsz134]){9}\\}$')

def hizzle(s):
    s1 = 13
    s2 = 37
    for n in range(len(s)):
        s1 = s1 + ord(s[n]) % 65521
        s2 = s1 * s2 % 65521
    return (s2 << 16) | s1
```

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```
def smizzle(a, b):
   return '{0:x}'.format(a) +'\t' + '{0:x}'.format(b)

print('-------------------------------------')
print('     o             o        ')
print('     | o     o       |        ')
print('   o-O   o--o   o-o o-o | o-o o-o   ')
print("  | | | | || /  /  | |-' |    ")
print('   o-o | o--O | o-o o-o o o-o o    ')
print('          |                 ')
print('       o--o                  ')
print('-------------------------------------')
s = input('enter flag:')
if pattern.match(s):
   print('digizzling...')
   a = hizzle(s)
   b = hizzle(s[::-1])
   print(smizzle(a, b))

else:
   print('wrong format!')
```

5. Open a Windows Command Prompt.

6. Execute the following command, from the Windows Command Prompt, to execute the digizzle.py Python script:

   python digizzle.py

```
-------------------------------------
      o                   o
      | o       o         |
    o-O   o--o   o-o o-o | o-o o-o
   |  | | |  | | /   /  | |-' |
    o-o | o--O | o-o o-o o o-o o
          |
        o--o
-------------------------------------
enter flag:
```

7. Type **he2021{d1d1zzl34}** and then press the **Enter** key:

```
digizzling...
3a940588        395a0588
```

8. Use PasswordsPro v3.1.2.0 to create a 9-character dictionary list, codes.dic, using the characters **dlsz134**.

9. Execute the following commands, from the Windows Command Prompt, to display the number of words in the codes.dic file:

   type code.dic | wc -l

```
34949880
```

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10. Execute the following commands, from the Windows Command Prompt, to create a word list, d1-zzl3.txt, containing any words in the codes.dic file, with the strings d1 and zzl3:

    grep d1 code.dic | grep zzl3 > d1-zzl3.txt

11. Execute the following commands, from the Windows Command Prompt, to display the number of words in the d1-zzl3.txt file:

    type d1-zzl3.txt | wc -l

    ```
    6033
    ```

12. Create a Python script, findflag.py, to attempt to locate the word used to generate a provided hash value, using a given word list:

```
#!/usr/bin/python

import sys

if len(sys.argv) < 3:
   print("Usage:\tpython findflag.py <wordlist> <hash>\n")
   print("\twordlist\t- dictionary/wordlist file\n")
   print("Example:\n")
   print("\tpython findflag.py lower.txt 395a0588")

else:
   wrdlst = sys.argv[1]
   s1 = int(sys.argv[2], 16) & 0xffff
   s2 = int(sys.argv[2], 16) >> 16

   start = 'he2021{'
   end = '}'

   try:
      ## Open the wordlist file with read only permit
      f1 = open(wrdlst)

   except IOError:
      print("File %s does not exist." % wrdlst)

   else:
      ## Read the first word from the wordlist file
      word = f1.readline()

      ## If the file is not empty keep reading one line at a time
      ## till the file is empty

      foundflag = False

      while word and foundflag == False:
         flag = start + word.strip('\n') + end
         cur_s1 = s1
         cur_s2 = s2

         for i in range(len(flag)):
            found = False
            x = cur_s2
```

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```
        while found == False:
          if cur_s1 * x % 65521 == cur_s2:
            found = True

          else:
            x -= 1

            if x == 0:
              x = 65521

        cur_s2 = x
        cur_s1 = cur_s1 - ord(flag[i]) % 65521

      if cur_s1 == 13 and cur_s2 == 37:
        foundflag = True

      else:
        word = f1.readline()

    if foundflag:
      print('flag: %s' % word)

    f1.close()
```

13. Execute the following command, from the Windows Command Prompt, to execute the findflag.py Python script:

    python findflag.py d1-zzl3.txt 73f205ca

    ```
    flag: d1s4zzl3d
    ```

14. Close the Windows Command Prompt.

Flag: **he2021{d1s4zzl3d}**