Web Mining Lab Assignment 4

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The Question:

Write a python program to perform the following encoding for the ODD numbers between 1 – 30 i) Elias Gamma ii) Elias Delta iii) Golomb (b = 10)

The Answer:

1. Urany Encoding:

The Code:

```
for i in range(1,30,2):
    print("1"*i+"0")
```

The Output:

```
10
1110
111110
11111110
1111111110
111111111110
11111111111110
1111111111111110
111111111111111110
1111111111111111110
11111111111111111110
111111111111111111110
1111111111111111111110
11111111111111111111110
111111111111111111111110
1111111111111111111111110
>>>
```

2. Elias Gamma Encoding:

The Code:

```
c=0

s=""


for i in range(1,30,2):
    c=0
    s=format(i,"b")
    for j in range(len(s)):
        c=c+1
    s1 = "0"*(c-1)+s
    print(s1)
    s1=0
```

The Output:

```
1
011
00101
00111
0001001
0001011
0001101
0001111
000010001
000010011
000010101
000010111
000011001
000011011
000011101
>>>
```

3. Elias Delta Encoding:

The Code:

```
import math
count=0
k1=0;
s2=""
s1=""
s=""
c=0
for i in range(1,30,2):

    a = math.log2(i)
    b = math.floor(a)
    c = b+1
    d = format(c,"b")
    count=0
    for j in range(len(d)):
        count=count+1
    s1 = "0"*(count-1)+d
    f = format(i,"b")
    g = f[1:]
    s3 = s1+g
```

```
    print(s3+"\n")
```

The Output:

```
1

0101

01101

01111

00100001

00100011

00100101

00100111

001010001

001010011

001010101

001010111

001011001

001011011

001011101
```

4. Golumb Encoding:

The Code:

```
from math import *

n=[i for i in range(1,31,2)]

def unary(n):

    if n==0:

        return '0'
```

```
    return ('0'*n + '1')



def golumb(n,b):
    q= n//b
    r = n-q*b
    x1 = unary(q)
    ubits = ceil(log(b,2))
    bitlength= 2**ubits - b
    if(r>=bitlength):
        return x1+bin(r + bitlength)[2:].zfill(ubits)
    else:
        return x1+bin(r )[2:].zfill(ubits-1)


for i in n:
    print(golumb(i,10))
```

The Output:

```
======== RESTART: C:\Users\OM\(OM)\5Fifth Semester\encoding_lab_4.py ========
0001
0011
0101
01101
01111
01001
01011
01101
011101
011111
001001
001011
001101
0011101
0011111
```

---

5. Variable Byte Coding:

The Code:

```
for i in range(1,30,2):
    a = format(i,"b")
    c = len(a)
    if c < 7:
        c = "0"*(7-c)+a
        print(c+"0"+"\n")
    else:
        b = c[:-7]
        print(b+"0"+"\n")
        e = c[0:8]
        print(e+"1\n")
```

The Output:

```
======== RESTART: C:/Users/OM/(OM)/5Fifth Semester/encoding_lab_4.py ========
00000010

00000110

00001010

00001110

00010010

00010110

00011010

00011110

00100010

00100110

00101010

00101110

00110010

00110110

00111010
```