

CIIT Lab#6
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Source code:

```
#!/usr/bin/env python
# -*- coding: utf-8 -*-
__author__ = 'ar1'
import random
def generate():
    g = random.uniform(0, 1)
    if(g <= 0.25):
        return 1, ""
    elif g > 0.25 and g <= 0.5:
        return 0, ""
    else:
        return random.randint(0, 1), "?"
def create_pop():
    pop = []
    for chr in xrange(1):
        chrom = []
        for gen in xrange(20):
            a = generate()
            chrom.append(a)
        pop.append(chrom)
    return pop
def main():
    pop = create_pop()
    for chrom in pop:
        learning(chrom)
def learning(chrom):
    for count in 1000:
        unhappy_gens = 0
        for gen in chrom:
            if gen[1] == "?":
                r_bit = random.randint(0, 1)
                if r_bit == gen[0]:
                    print("happy")
                    gen[1] = r_bit
            unhappy_gens = calc_unhappies(gen)
        if unhappy_gens == 0:
            return
def calc_unhappies(gen):
    unhappies = 0
    for bit in gen:
        if bit[1] == "?":
            unhappies += 1
    return unhappies
if __name__ == "__main__":
    main()
    generate()
```