

List of Predefined Static Values

```
TRIALS = 10000
GEN_SIZE = 100

DEF_BIN_RANGE = 63
DEF_OCT_RANGE = 4095
DEF_INT_RANGE = 9999
DEF_HEX_RANGE = 65535
DEF_LENGTH_TP = 10
DEF_LENGTH_STR = 20

DEF_LENGTH_CODE = 3
DEF_LENGTH_KEY = 4

DEF_DATE_RANGE = 99999999999
```

Above values can be changed based on the requirement.

List of Functions

Generate Functions

```
gen_bool(mode=''):
gen_binary(length=DEF_BIN_RANGE):
gen_octal(length=DEF_OCT_RANGE):
gen_decimal(length=DEF_INT_RANGE):
gen_hex(length=DEF_HEX_RANGE):
gen_float():
gen_tel():
gen_serialno(fmt='s', default='', code_len=DEF_LENGTH_CODE,
key_len=DEF_LENGTH_KEY):
gen_string(length=DEF_LENGTH_STR, mode='s'):
gen_ascii(length=DEF_LENGTH_STR, case='', mode='s'):
gen_ip():
gen_date():

generator(fmt):
```

Evaluation Functions

```
eval_tel(field):  
eval_bool(field):  
eval_binary(field):  
eval_octal(field):  
eval_decimal(field):  
eval_hex(field):  
eval_any_string(field):  
eval_date(field):  
eval_ip(field):  
eval_serialno(field):
```

```
evaluator(fmt):
```

Fitness Calculation Function

```
fitness(fmt):
```

Reproduce Function

```
reproduce(dictionary):
```

Result Printing Function

```
details():
```

Main Function

```
main():
```

Structure of Execution

```
main()  
    for i = 1 : TRIALS  
        g=generator()  
        if evaluator(g) == True  
            f = f + fitness(g)  
    r = reproduce (f)  
    foreach result in r  
        return result  
    print "details()"
```

Function Structure

Generate functions generates below data types based on given inputs.

1. boolean
2. binary
3. octal
4. decimal
5. hexadecimal
6. floating point values
7. telephone numbers
8. serial numbers
9. strings
10. ascii strings
11. ip address
12. date

Evaluation functions evaluates generated data based on the programmers conditions. If the evaluation is successful evaluation function proceed the successful result with fitness function. If not it will ignore the result.

Fitness function sets the fitness for each and every selected result and rearrange the result into key value pair. Most fitted result will get the highest value.

Structure of Fitness result

Key : Value
Fitness Value : [set-1, set-2, set-3, ...]

sample :

```
536324246: [['ip', 1684300900, 4294967040, '132.91.71.81'], ['string',  
'm', 'u', 10, 20, 'NZKT ABPVNND V'], ['ascii', 'm', 'u', 10, 20, 'Y R6K XVE'],  
['serialno', 'emp', 's', '', '8522EMP'], ['bool', 'f', False], ['binary', 9, 15,  
'0b11000'], ['octal', 100, 4095, '04175'], ['decimal', 1000, 9999, 6124],  
['hex', 1000, 65535, '0x772e'], ('date', 66600.0, 1577903400.0, '2002-03-02'),  
['tel', '0812524708']]
```

Reproduce function starts with the highest fitted result and reproduce new test cases, using generate functions. In here `reproduce()` function sets the inputs for generate functions.