Question 1 Max. score: 1.00 Negative score: 1.00

What is the output of the following C code snippet on a 64-bit machine:

```
#include <stdio.h>

int main()
{
    char *str = "Amagi";
    char *str1 = "Media";
    printf("%d %d", sizeof(str), sizeof(str1));
}
```

- 5 5
- 8 8
- 6 6
- 4 4

Question 2 Max. score: 1.00 Negative score: 1.00

What is the output of the following C code:

```
#include <stdio.h>
void main()
{
    int look[100] = {1, 2, 3, 4};
    printf("%d", look[5]);
}
```

- ○ Runtime crash
- ○ Compilation error
- ● Garbage value
- ○ 0

**Question 3** **Max. score: 1.00**

What is the output of the following C code:

```
#include<stdio.h>
int main()
{
    char str[20] = "AaBbCcDdEe";
    char *p=str;
    *p++='X';
    *(p+5)='x';
    printf("%s\n", str);
    return 0;
}
```

- Compilation error
- AXBbCxDdEe
- XaBbCxDdEe
- XaBbCcxdEe

**Question 4** **Max. score: 1.00**

What is the output of the following C code:

```
#include<stdio.h>
#define PRINT(k) printf("%d,",k)
int main()
{
    int x=-1, y=2, z=0;
    PRINT(x);
    PRINT(y);
    PRINT(z);
}
```

- ○ Compilation error
- ○ Runtime error
- ● -1,2,0, ✓ *Your answer has been saved.*
- ○ -1,2,

**Question 5** **Max. score: 1.00**

What is the output of the following Python code:

```
t = ('hello', "World", 10.233, True, [100, 0, 90], "ok bye")
print (t [2 : 4])
```

- (10.233, True, [100, 0, 90])
- (True, [100, 0, 90])
- (hello, world)
- (10.233, True)

Question 6 Max. score: 1.00

What is the output of the following Python code:

```
def addItem(listParam):
  listParam += [1]

mylist = [1, 2, 3, 4]
addItem(mylist)
print len(mylist)
```

- 3
- 5
- 4
- 8

**Question 7** Max. score: 1.00 Negative score: 1.00

What is the output of the following Python code:

```
a = [[1] * 2] * 2
a [0][0]=2
```

- [[2, 1], [1, 1]]
- [[2, 1], [2, 1]]
- [[1,1],[1,1]]
- None of these

Question 8 Max. score: 1.00

What is the output of the following C++ code:

```
#include <iostream>
using namespace std;

int main()
{
    int* p = new int[10];
    for ( char i = 0; i < 10; i++ )
    {
        p[i] = i;
    }

    for ( auto i = 10; --i ; )
    {
        cout << p[i] <<" ";
    }
    return 0;
}
```

- Compilation error
- 9 8 7 6 5 4 3 2 1 0
- 9 8 7 6 5 4 3 2 1

Question 9 Max. score: 1.00

What is the output of the following C code:

```
#include<stdio.h>

void main()
{
int const *p=5;
printf("%d",++(*p));
}
```

- 5
- 6
- Compilation error
- Runtime error

Question 10 Max. score: 1.00 Negative score: 1.00

If the address of **a** = **X** and address of **b** = **Y** initially, then what is the output of the following C code:

```
int a = 10, b = 20;
int *p = &a, *q = &b;
int **p1 = &p, **q1 = &q;

printf("%x %x\n",*p1,*q1);
```

- X Y
- Compilation error
- Segmentation fault
- Garbage value

**Question 11** **Max. score: 1.00**

What is the output of the following Python code:

```
import re
regex = re.compile(r'\S\W\D+?')
pattern =regex.findall('Alen is having len of lenses')
print(pattern)
```

- ['n i', 's h', 'g l', 'n o', 'f l']
- ['n ', 's ', 'g ', 'n ', 'f ']
- ['n i', 's h', 'g l', 'n o', 'f l']
- ['n is having len of lenses']

Question 12 Max. score: 1.00 Negative score: 1.00

What is the output of the following C code:

```
#include<stdio.h>
unsigned testhack(unsigned int val, unsigned int a)
{
    if (val == 0)  return a;

    return testhack(val-1, val*a);
}
unsigned int hck(unsigned int val)
{
   return testhack(val, 1);
}

int main()
{
    printf("%d",hck(5));
    return 0;
}
```

- 5
- Infinite loop

**Question 13** **Max. score: 1.00**

What is the output of the following C code:

```
char arr[5][5] = {
    {'h', 'e', 'l', 'l', 'o'},
    {'h', 'a', 'v', 'e'},
    {'a'},
    {'g', 'r', 'e', 'a', 't'},
    {'d', 'a', 'y'}
};

char *p = arr[1];
p = p + 3;
printf("%c", *p);
```

- h
- a
- e
- v

**Question 14** Max. score: 1.00 Negative score: 1.00

What is the output of the following C++ code:

```
#include <iostream>
using namespace std;
void func(int x)
{
    cout << x;
}
int main()
{
    void (*n)(int);
    n = &func;
    (*n)(1);
    n(1);
    return 0;
}
```

- Compilation Error
- Runtime crash
- 11
- 1

**Question 15** **Max. score: 1.00**

Mike has received a support case from the customer who is using his library. The customer has shared their application code snippet as follows:

```
Products p1 = new Product("Bob","123");
Products p2 = p1;
Products p3 = p1;
```

The customer mentioned that they intend to make multiple objects of a class *Product*. However, if they change the (data member) description of one product, then the description of other products also change.
How should Mike modify the following library code to prevent this:

```
class Product{
public:
    string *category;
    string *description;

    Product (string category, string description)
    {
        this->category = new String(category);
        this->description =  new String(description);
    }
};
```

- By adding a default constructor

**Question 16** Max. score: 1.00 Negative score: 1.00

What could be the possible data type of the variable *se* in the following C++ code:

```
for(auto it = se.begin(); it!=se.end();++it)
{
  for(int i = 0; i < (it->second).size(); i++)
  {
    int g = (it->second)[i].first + (it->first);
    if(se.find(-(it->first)) != se.end() && (it->first) > 0)
    {
      auto pt = lower_bound(se[- (it->first)].begin(),se[ - (it->first)].end(),make_pair(g,-1));
      if(pt != se[-(it->first)].end())
      {
        int m = (it->second)[i].second+pt->second;
      }
    }
  }
}
```

- vector<pair<int,vector<pair<int,int> > > >
- map<int,pair<int,int> >
- vector<pair<int,map<int,pair<int,int> > > >

**Question 17** **Max. score: 1.00**

What is the output of the following Python code:

```
l1 = [3, 4, 5, 20, 5, 25, 1, 3]
l1.append([34, 5])
print  (l1 [-1])
```

- 3
- 5
- 35
- None of these

**Question 19** **Max. score: 1.00**

You are given a 2D int array A of size *4 X 5*. Which of the following values is equivalent to **(a + 9)* considering the following C code:

```
int * a = A[0];
```

- A[1][4]
- A[0][8]
- A[1][9]
- None of the above

**Question 18** **Max. score: 1.00**

What is the output of the following Python code:

```
x = ['hello']
print (x [1: 3])
```

- []
- Error
- ell
- ['e', 'l', 'l']

**Question 20** **Max. score: 1.00**

What is the output of the following C code:

```
#include <stdio.h>

void main()
{
int *ptr,list[100],i;
for (i = 0;i < 100;i++)
{
    list[i] = i + 10;
}
ptr = list + 27;
printf("%d\n",list[27]);
printf("%d\n",*ptr);
}
```

- 37 37
- 27 27
- 137 137
- Runtime error

Question 21 Max. score: 30.00

Candy boxes

Ramu's family runs a candy shop in the village. On one fine Sunday afternoon, Ramu's father retruned from the city with a carton full of candies. He asks Ramu to pack them into small boxes containing tiny pouches. Each box should contain $n$ pouches, containing unique number of candies from $1$ to $n$. The carton contains candies of assorted colors. However, the children of the village seem to like only the red candies. So Ramu decides to adopt the following approach.

He will randomly grab a fistful of candies from the carton. He will put back all the candies of color other than red into a separate bin meant for returning to the wholeseller. He will count the number of red candies left in his hand and pack them into a new empty pouch. The pouch can hold at most $n$ candies, so if there are more, Ramu is allowed to eat the remaining candies that cannot fit in the pouch (his reward for doing the job). He seals the pouch after putting a label of number of candies inside it. He doesn't want the pouches to pile up, so as soon as he has a set of pouches with label $1$ to $n$, he should pack them into a box and give it to his father. Once the candies from the carton are exhausted, the pouches that could not be packed into the box are emptied into the bin for returing to the wholeseller.

Ramu is your friend and you should help him in his job. Ramu will tell you how many red candies he got in every draw, your task is to tell him immediately if he could pack a new box after packing the current draw in the pouch.

## Input

## Input

The first line will contain two integers $n$ and $m$, denoting the maximum candies a pouch can hold, and number of times Ramu draws from the carton, respectively.

The next line will contain $m$ integers, $x_1 x_2 \ldots x_m$ where $x_i$ denotes the number of red candies Ramu got in the $i^{\text{th}}$ draw.

$0 < n, m, x_i < 100000$.

## Output

For every number in the second line of the input, emit a 1 or 0.

1 if a box can be packed with the current draw, and 0 otherwise. The digits should be space separated.

**Sample input**

```
4 13
1 3 4 1 2 3 2 9 5 5 5 5 5
```

**Sample output**

```
0 0 0 0 1 0 0 1 0 0 0 0 0
```

**Explanation**

## Explanation

A pouch can hold $4$ candies at most and each box must have $4$ pouches with $1, 2, 3$ and $4$ candies each. Ramu draws $13$ times in total.

At the $5^{\text{th}}$ draw, he has $2$ pouches with $1$ candy and a pouch each for $2, 3$ and $4$ candies. So he can pack a box. He gets the chance again at the $8^{\text{th}}$ draw of $9$ candies (of which he could eat $5$). The later draws aren't fruitful as they all result in pouches of $4$ candies each.

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## Note:

Your code must be able to print the sample output from the provided sample input. However, your code is run against multiple hidden test cases. Therefore, your code must pass these hidden test cases to solve the problem statement.

### Limits

Time Limit: 0.11 sec(s) for each input file
Memory Limit: 256 MB
Source Limit: 1024 KB

### Scoring

Score is assigned if any testcase passes

### Allowed Languages

Bash, C, C++, C++14, C++17, Clojure, D, Erlang, F#, Go, Groovy, Haskell, JavaScript(Rhino), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, R(RScript), Racket, Ruby, Rust, Scala, Swift-4.1, Swift, TypeScript

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