

**Decision Making and Looping –
while and do...while, for**

Program: Stone game - One Four

```
#include <stdio.h>
int main()
{
    int T, i = 0, n, t;
    scanf("%d", &T);
    while (i < T)
    {
        scanf("%d", &n);
        t = n/4;
        if (t%2 == 0 & n%2 == 0)
        {
            printf("No\n");
        }
        else if (t%2 == 1 & n%2 == 1)
        {
            printf("No\n");
        }
        else
        {
            printf("Yes\n");
        }
        i++;
    }
    return 0;
}
```

Sample Input

3
1
6
7

Sample Output

Yes
Yes
No

Program: Holes in a Number

```
#include <stdio.h>
int main()
{
    int a, b, n = 0;
    scanf("%d", &a);
    while (a > 0)
    {
        b = a % 10;
        if (b == 0 || b == 6 || b == 9 || b == 4)
        {
            n = n + 1;
        }
        else if (b == 8)
        {
            n = n + 2;
        }
        a = a / 10;
    }
    printf("%d", n);
    return 0;
}
```

Sample Input
636

Sample Output
2

R

Program: Palindrome

```
#include <stdio.h>
int main() {
    int n, a = 0;
    scanf("%d", &n);
    while (n != 0)
    {
        n = n / 10;
        a = a * 10 + n % 10;
    }
    printf("%d", a);
    return 0;
}
```

Sample Input

10

Sample Output

4

R

Program: Number Count

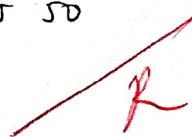
```
#include <stdio.h>
int main()
{
    int n, x=0;
    while (scanf("%d", &n) != 1) {
        if (n % 2 != 0)
        {
            x++;
        }
    }
    printf("%d", x);
    return 0;
}
```

Sample Input

5 10 15 20 25 30 35 40 45 50

Sample Output

5



Program: Confusing Numbers

```
#include <stdio.h>
int main() {
    int n, x, y = 1;
    scanf("%d", &n);
    while (n != 0 && y == 1) {
        x = n % 10; n = n / 10;
        if (x == 2 || x == 3 || x == 4 || x == 7) {
            y++; }
        if (y == 1) {
            printf("true"); }
        else {
            printf("false"); }
        return 0;
    }
```

Sample Input
25

Sample Output
false



Program: Multiplication Value

```
#include <stdio.h>
int main()
{
    long long int n, t, i, mult = 0;
    scanf("%lld %lld", &n, &t);
    for (i = 1; i <= n; i++) {
        mult += i;
        if (mult == t) {
            mult = mult - 1; } }
    printf("%lld", mult % 10000000007);
    return 0;
}
```

Sample Input

2

2

Sample Output

3

