Electron configuration

In atomic physics and quantum chemistry, the electron configuration is the distribution of electrons of an atom or molecule (or other physical structure) in atomic or molecular orbitals.[1] For example, the electron configuration of the neon atom is 1s2 2s2 2p6. The form of the periodic table is closely related to the electron configuration of the atoms of the elements. The Aufbau principle, a maximum of two electrons are put into orbitals in the order of increasing orbital energy: the lowest-energy orbitals are filled before electrons are placed in higher-energy orbitals. Hund's rule: every orbital in a subshell is singly occupied with one electron before any one orbital is doubly occupied, and all electrons in singly occupied orbitals have the same spin. So that

```
1. Orbitals are filled in the order of increasing n+l;
2. Where two orbitals have the same value of n+l, they are filled in order of increasing n.
3.  Electrons of similar energy will first half fill their orbitals before completely filling them.
```

This gives the following order for filling the orbitals:

```
1s, 2s, 2p, 3s, 3p, 4s, 3d, 4p, 5s, 4d, 5p, 6s, 4f, 5d, 6p, 7s, 5f, 6d, 7p, (8s, 5g, 6f, 7d, 8p, and 9s)
```

In general, the periodicity of the periodic table in terms of periodic table blocks is clearly due to the number of electrons (2, 6, 10, 14...) needed to fill s, p, d, and f subshells.

Now Input the Atomic Number and Find the Electron configuration.

Input Format

An Integer value, Atomic Number **X**

Constraints

0

Output Format

Print the Electron configuration as showm in Sample output.

Sample Input 0

```
20
```

Sample Output 0

```
1s 2
2s 2
2p 6
3s 2
3p 6
4s 2
```

Explanation 0

20 Ca calcium : [Ar] $4s^2$																		
$1s^2$	$2s^2$	$2p^6$	$3s^2$	$3p^6$		$4s^2$												
2	8		8			2												

Sample Input 1

```
24
```

Sample Output 1

```
1s 2
2s 2
2p 6
3s 2
3p 6
3d 5
4s 1
```

Explanation 1

It also follow Hund's rule in 3d and 4s.

24 Cr chromium : [Ar] $3d^5\ 4s^1$																		
$1s^2$	$2s^2$	$2p^6$	$3s^2$	$3p^6$	$3d^5$	$4s^1$												
2	8		13			1												