Some examples of Lie groups:

1. The multiplicative group $\mathbb{R} - \{0\}$
2. The multiplicative group $\mathbb{C} - \{0\}$
3. The multiplicative group $\mathbb{R}_+ = \{x \in \mathbb{R} : x > 0\}$
4. The additive group $\mathbb{R}^n$, for any $n \geq 1$
5. The additive group $\mathbb{C}^n$ for any $n \geq 1$
6. The group $M(n, \mathbb{R})$ of $n \times n$ matrices over $\mathbb{R}$
7. The group $M(n, \mathbb{C})$ of $n \times n$ matrices over $\mathbb{C}$
8. The group $GL(n, \mathbb{R})$ of $n \times n$ invertible matrices over $\mathbb{R}$
9. The group $GL(n, \mathbb{C})$ of $n \times n$ invertible matrices over $\mathbb{C}$
10. The group $GL_+(n, \mathbb{R})$ of real $n \times n$ matrices with positive determinant
11. The group $SL(n, \mathbb{R})$ of real $n \times n$ matrices with determinant 1
12. The group $SL(n, \mathbb{C})$ of complex $n \times n$ matrices with determinant 1
13. The group $O(n, \mathbb{R})$ of real orthogonal $n \times n$ matrices
14. The group $O(n, \mathbb{C})$ of complex orthogonal $n \times n$ matrices
15. The group $SO(n, \mathbb{R}) = \{A \in O(n, \mathbb{R}) : detA = 1\}$
16. The group $U(n)$ of complex $n \times n$ unitary matrices
17. The group $SU(n) = \{A \in U(n) : detA = 1\}$
18. The multiplicative group $\mathbb{H} - \{0\}$ of nonzero quaternions
19. The group $Sp(n)$ of quaternionic $n \times n$ unitary matrices
20. The circle $S^1 = \{z \in \mathbb{C} : |z| = 1\}$ (with multiplication)

21. The group S^3 of quaternions with norm 1

22. The torus $S^1 \times S^1$

23. any product $G \times H$ of two Lie groups

24. The group T^n of translations on $\mathbb{R}^n$

25. The group of all $n \times n$ upper-triangular invertible matrices over $\mathbb{R}$

26. The product manifold $(\mathbb{R} - \{0\}) \times \mathbb{R}$ with group operation defined by $(a, b)(c, d) = (ac, ad + b)$

27. The product manifold $GL(n, \mathbb{R}) \times \mathbb{R}^n$ with group operation defined by $(A, B)(C, D) = (AC, AD + B)$

28. The Lorenz group of all operations preserving the Minkowski metric $ds^2 = dt^2 - dx^2$.