Lab03-Set, Relation, and Function

计算机科学导论课后习题，讲师：高晓沨，2016 秋季学期

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∗ 电子版作业请直接上传到课程网站

1. 请设计算法，求$1+2+\cdots+100$的和。写出伪代码，并用VISIO绘出对应的流程图。

Solution. Question.1

Algorithm 1: *Sum* : 1 *to* 100

Input: $\varnothing$
Output: *sum*

```
1 sum ← 0;
2 n ← 1;
3 while n<101 do
4 |   sum ← sum+n;
5 |   n ← n + 1;
6 end
7 output sum;
```

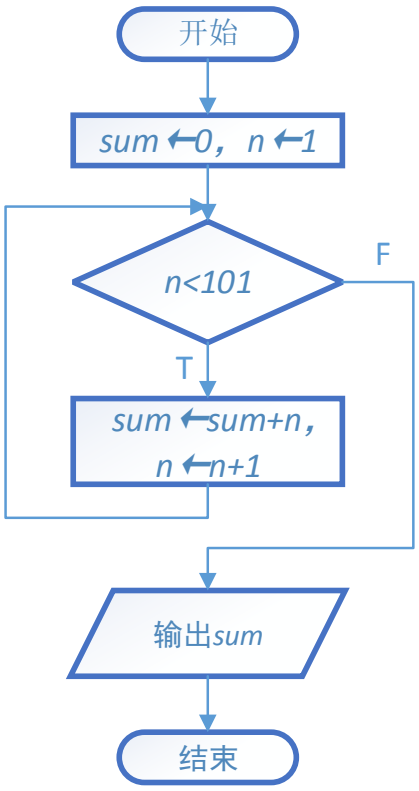


Figure 1: 第1题流程图

2. 设全集$U=\{1,2,3,4,5,6\}$，集合$A=\{1,3,4\}$，$B=\{1,2,5\}$，$C=\{2,4,6\}$，求下列集合:

(a) $(A \cap B) \cup \overline{C}$,

(b) $(A - B) \cap C$,

(c) $A \oplus B \oplus C$.

Solution. Question.2

(a) 因为$(A \cap B) = \{1\}$，$\overline{C} = \{1, 3, 5\}$，所以$(A \cap B) \cup \overline{C} = \{1, 3, 5\}$

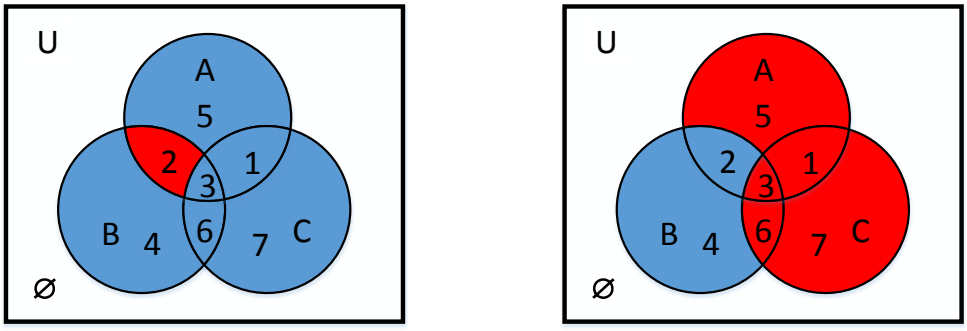
(b) 因为$A - B = \{3, 4\}$,$C = \{2, 4, 6\}$,所以$(A - B) \cap C = \{4\}$

(c) 因为$A \oplus B = \{2, 3, 4, 5\}$,$C = \{2, 4, 6\}$，所以$A \oplus B \oplus C = \{3, 5, 6\}$

3. 设全集$U = \{1, 2, 3, 4, 5, 6, 7, 8\}$，集合$A = \{1, 2, 3, 5\}$，$B = \{2, 3, 4, 6\}$，$C = \{1, 3, 6, 7\}$，请用韦恩图表示下列集合:

(a) $(A \cap B) \cap \overline{C}$,

(b) $(A - B) \cup C$.



(a) $(A \cap B) \cap \overline{C}$ (b) $(A - B) \cup C$

Figure 2: 第3题韦恩图