

ERRATA  
Design and Analysis of Algorithms  
A Contemporary Perspective

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**bstract**

This is a compilation of errors that have been discovered post publication. The authors will endeavor to update this periodically and express their regret for any inconvenience caused to the reader of this book. We will also like to thank the readers who have brought these errors to our notice.

## chapter wise list of errata

- Chapter 1 Page 4, line 3: The first term should be multiplied by  $2^n$  instead of  $2^{n/2}$  as per the expression in the previous page.  
 Page 9, Example 1.1  

$$AB = \begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$$
 instead of  $AB = \begin{bmatrix} 1 & 1 \\ 1 & 0 \end{bmatrix}$   $ABX' = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$  instead of  $\begin{bmatrix} 1 \\ 0 \end{bmatrix}$
- Chapter 3 Page 46, line 9 : Problem 3.16 should be Problem 3.19
- Chapter 4 Page 78, Equation 4.6.2 : Inequality should be reversed for definition of convex function
- Chapter 5 Section 5.6, page 102, lines 10-12 : Definition of  $I(v, 1)$  and  $I(v, 0)$  should be flipped corresponding to the cases that  $v$  has been picked and  $v$  cannot be picked.
- Chapter 6 item Section 6.1 page 85 line 5 y-coordinate is 1 or "-1" instead of 0  
 Section 6, page 83 line 15: Something wrong with the description of  $g(x) = "x \text{ is}"$  should be deleted and the corrected version is  $g(x) = -x-$   
 Page 118 : After the notation for hash locations,  $h$  should be formally defined as a map  $h : \mathcal{U} \rightarrow \{0, 1 \dots m - 1\}$   
 Page 118, line 20 :  $O_1(x_2)$  should be  $O_1(x_1)$ .  
 Problem 6.8, page 126 : Instead of  $m$  is prime, it should be  $N$  is prime.  
 Problem 6.10, page 126 end with the line "Prove that .. universal class of hash functions. The next line starting with "A collection of hash functions .." is a different problem and should have been numbered 6.11.
- Chapter 7 Figure 7.2, page 132 inconsistency in the diagram - dotted and solid vertical lines. The scale 1,2, 3 is displaced. The number 12.1 below the node should be erased  
 Figure 7.14, Page 150 line 6 Instead of  $P \leftarrow P \cup \{p_j\}$  it should be  $S \leftarrow S \cup \{p_j\}$   
 Exercise problems, page 155, 7.21 (ii)  $O(n \log n)$  instead of  $O(n \log h)$ .  
 Exercise problems, page 155, 7.22  $O(n \log h)$  instead of  $O(n \log n)$ .
- Chapter 9 Section 9.4, Page 178, Equation 9.4.2 - The recursive call should be on  $2\sqrt{2n}$  and not  $2\sqrt{n \log n} + \log n$  because of the reason given in the first line of Page 179.

Chapter 10 Section 10.1, Page 187 line -3 DFS(u) will terminate before DFS (v) should be "DFS (v) will ... before DFS (u) and in the last line  $finish(v) < finish(v)$  should be  $finish(u) < finish(v)$ .  
 Figure 10.7, Page 196 The labels of C should be I,I, 5,5 , ...5 instead of I,I, 3, 3, ... label of D should be I, I, I, 9,9,.. not I,I,I, 7,7, ...  
 section 10.4, page 198 line -7 definition of t spanner is incomplete -  $t_G(u, w) \geq s(u, w) \geq_G(u, w)$ . The first inequality is missing.

Chapter 11 Section 11.1.3, page 22, The upper-bound on an edge is initially denoted by  $c_e$  and subsequently by  $u_e$ . The reader may assume that  $c_e = u_e$ .  
 Exercise Problem 11.4, Page 228 : The notation  $s$  for guests is overloaded as it represents the number of schools in the previous problem.

Chapter 13 Section 13.3.5, Page 274, para 3 The symbol  $\sigma$  should be  $\sigma_1$ . As such  $\sigma$  is undefined.  
 Page 269, line 6 after Theorem 13.5  $\|A_B\|_F^2$  should be  $\|A - B\|_F^2$

Chapter 14 Section 12.4.1, page 241, para 3 (3 lines before Claim 12.5: Instead of  $y_{j,a} \neq \overline{y_{k,b}}$ , it should be  $y_{j,a} = \dots$  (inequality should be equality).  
 Problem 14.12, page 305, The partial sums  $S_j$  should be defined as

$$S_{k,j} = \sum_{t=i}^k x_t, \quad i_j \leq k \leq i_{j-1} - 1$$

Problem 14.17, page 306, The last line should be "...  $o(n \log n)$ , instead of  $O(n \log n)$

Chapter 16 Section 16.4, page 331, last line : The position of the second  $\sum$  should be outer to the entire expression, i.e.

$$\sum \frac{1}{f_i} \cdot f_i^k \cdot \frac{f_i}{m}$$

Section 16.4, page 334, line -3 from 16.4.1 :  
 $t$  should be set to  $\frac{k}{\epsilon} \cdot n^{1-1/k}$  - the  $k$  in the numerator is missing. For  $k = O(1)$  the bounds in Section 16.4.1 will hold but for the other case, the bounds have to be adjusted by a multiplicative  $k$ .