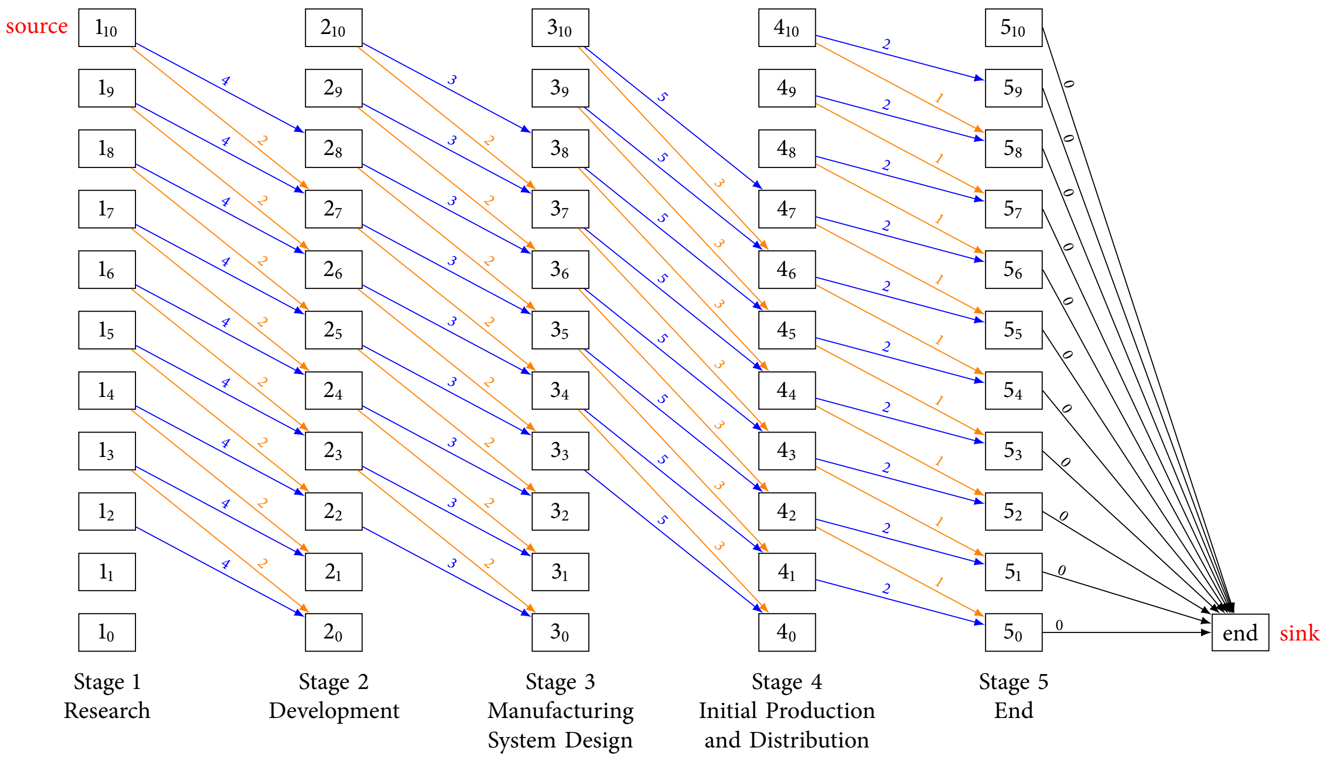
B Solutions to Problems

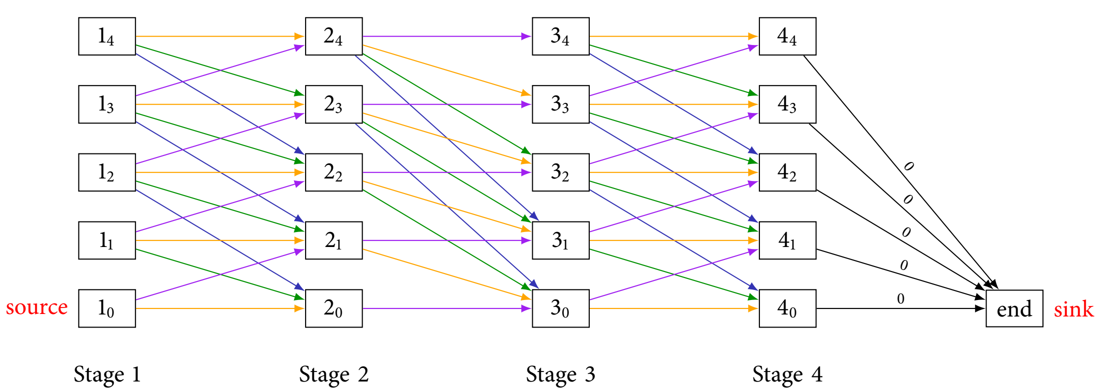
Solution to Problem 1. We can model this problem as a dynamic program with the following shortest path representation:

- Stage t represents deciding the speed for phase t ($t = 1, \ldots, 4$), or the end of the decision-making process ($t = 5$).
- Node t_n represents having n million dollars left at stage t ($n = 0, 1, \ldots, 10$).



Solution to Problem 2. We can model this problem as a dynamic program with the following shortest path representation:

- Stage t represents the beginning of month t ($t = 1, 2, 3$) or the end of the decision-making process ($t = 4$).
- Node t_n represents having n hundred laptops in inventory at stage t ($n = 0, 1, 2, 3, 4$).



Month	Production amount	Edge		Edge length
1	0	$(1_n, 2_{n-2})$	for $n = 2, 3, 4$	$15(100)(n-2)$
1	100	$(1_n, 2_{n-1})$	for $n = 1, 2, 3, 4$	$2500 + 100(100) + 15(100)(n-1)$
1	200	$(1_n, 2_n)$	for $n = 0, 1, 2, 3, 4$	$2500 + 100(200) + 15(100)n$
1	300	$(1_n, 2_{n+1})$	for $n = 0, 1, 2, 3$	$2500 + 100(300) + 15(100)(n+1)$
2	0	$(2_n, 3_{n-3})$	for $n = 3, 4$	$15(100)(n-3)$
2	100	$(2_n, 3_{n-2})$	for $n = 2, 3, 4$	$2500 + 100(100) + 15(100)(n-2)$
2	200	$(2_n, 3_{n-1})$	for $n = 1, 2, 3, 4$	$2500 + 100(200) + 15(100)(n-1)$
2	300	$(2_n, 3_n)$	for $n = 0, 1, 2, 3, 4$	$2500 + 100(300) + 15(100)n$
3	0	$(3_n, 4_{n-2})$	for $n = 2, 3, 4$	$15(100)(n-2)$
3	100	$(3_n, 4_{n-1})$	for $n = 1, 2, 3, 4$	$2500 + 120(100) + 15(100)(n-1)$
3	200	$(3_n, 4_n)$	for $n = 0, 1, 2, 3, 4$	$2500 + 120(200) + 15(100)n$
3	300	$(3_n, 4_{n+1})$	for $n = 0, 1, 2, 3$	$2500 + 120(300) + 15(100)(n+1)$