

### 6.1.1 incremented date

#### A] Algorithm

**Step 1:** Start

**Step 2:** Input day

**Step 3:** Input month

**Step 4:** Input year

**Step 5:** if the year is a leap year

- If  $(\text{year} \% 400 == 0)$  OR
- $(\text{year} \% 4 == 0 \text{ AND } \text{year} \% 100 != 0)$   
→ February has **29 days**
- Else  
→ February has **28 days**

**Step 6:** Store number of days in each month

- January → 31
- February → 28 or 29
- March → 31
- April → 30
- May → 31
- June → 30
- July → 31
- August → 31
- September → 30
- October → 31
- November → 30
- December → 31

**Step 7:** If month  $< 1$  OR month  $> 12$

→ Print "**Invalid Date**" and Stop

**Step 8:** If day  $< 1$  OR day  $>$  maximum days of that month

→ Print "**Invalid Date**" and Stop

**Step 9:** Increase day by 1

day = day + 1

**Step 10:** If day exceeds maximum days of that month

- Set day = 1
- Increase month by 1

**Step 11:**

If month > 12

- Set month = 1
- Increase year by 1

**Step 12:** Print the new date in format dd-mm-yyyy

**Step 13:** Stop

## B] code

```
day = int(input())
```

```
month = int(input())
```

```
year = int(input())
```

```
def is_leap(year):
```

```
    if (year % 400 == 0) or (year % 4 == 0 and year % 100 != 0):
```

```
        return True
```

```
    return False
```

```
days_in_month = {
```

```
    1: 31,
```

```
    2: 29 if is_leap(year) else 28,
```

```
    3: 31,
```

```
    4: 30,
```

```
    5: 31,
```

```
    6: 30,
```

```
    7: 31,
```

```
    8: 31,
```

```
    9: 30,
```

```
    10: 31,
```

```
    11: 30,
```

```
    12: 31
```

```
}
```

```

# Check valid month

if month < 1 or month > 12:

    print("Invalid Date")

elif day < 1 or day > days_in_month[month]:

    print("Invalid Date")

else:

    day += 1

    if day > days_in_month[month]:

        day = 1

        month += 1

        if month > 12:

            month = 1

            year += 1

    print(f"{day:02d}-{month:02d}-{year}")

```

## C] output

The screenshot displays the CodeTANTRA IDE interface. On the left, a panel titled "6.1.1. Incremented Date" contains the problem description and validation rules. The main editor shows the Python code for the "nextDate.py" file. The output terminal at the bottom shows the results of the program's execution.

**Problem Description:** Write a Python program to check if a given date is valid. If the date is valid, print the next day's date (incremented date). If the date is invalid, print "Invalid Date".

**Date Validation Rules:**

- Valid Month:** 1 to 12
- Valid Day:** Depends on the month and year
  - January (1), March (3), May (5), July (7), August (8), October (10), December (12): 1 to 31 days
  - April (4), June (6), September (9), November (11): 1 to 30 days
  - February (2): 1 to 29 days in a leap year and 1 to 28 days in a non-leap year
- Valid Year:** Any positive integer greater than zero.

**Sample Test Cases**

**Code:**

```

1 day = int(input())
2 month = int(input())
3 year = int(input())
4
5 # Function to check leap year
6 def is_leap(year):
7     if (year % 400 == 0) or (year % 4 == 0
8         and year % 100 != 0):
9         return True
10        return False
11
12 # Days in months
13 days_in_month = {
14     1: 31,
15     2: 29 if is_leap(year) else 28,
16     3: 31,

```

**Output:**

```

1 2024
2 12
3 31
4
5 Invalid Date
6
7 2024
8 12
9 31
10
11 2024
12 12
13 31
14
15 2024
16 12
17 31
18
19 2024
20 12
21 31
22
23 2024
24 12
25 31
26
27 2024
28 12
29 31
30
31 2024
32 12
33 31
34
35 2024
36 12
37 31
38
39 2024
40 12
41 31
42
43 2024
44 12
45 31
46
47 2024
48 12
49 31
50
51 2024
52 12
53 31
54
55 2024
56 12
57 31
58
59 2024
60 12
61 31
62
63 2024
64 12
65 31
66
67 2024
68 12
69 31
70
71 2024
72 12
73 31
74
75 2024
76 12
77 31
78
79 2024
80 12
81 31
82
83 2024
84 12
85 31
86
87 2024
88 12
89 31
90
91 2024
92 12
93 31
94
95 2024
96 12
97 31
98
99 2024
100 12
101 31
102
103 2024
104 12
105 31
106
107 2024
108 12
109 31
110
111 2024
112 12
113 31
114
115 2024
116 12
117 31
118
119 2024
120 12
121 31
122
123 2024
124 12
125 31
126
127 2024
128 12
129 31
130
131 2024
132 12
133 31
134
135 2024
136 12
137 31
138
139 2024
140 12
141 31
142
143 2024
144 12
145 31
146
147 2024
148 12
149 31
150
151 2024
152 12
153 31
154
155 2024
156 12
157 31
158
159 2024
160 12
161 31
162
163 2024
164 12
165 31
166
167 2024
168 12
169 31
170
171 2024
172 12
173 31
174
175 2024
176 12
177 31
178
179 2024
180 12
181 31
182
183 2024
184 12
185 31
186
187 2024
188 12
189 31
190
191 2024
192 12
193 31
194
195 2024
196 12
197 31
198
199 2024
200 12
201 31
202
203 2024
204 12
205 31
206
207 2024
208 12
209 31
210
211 2024
212 12
213 31
214
215 2024
216 12
217 31
218
219 2024
220 12
221 31
222
223 2024
224 12
225 31
226
227 2024
228 12
229 31
230
231 2024
232 12
233 31
234
235 2024
236 12
237 31
238
239 2024
240 12
241 31
242
243 2024
244 12
245 31
246
247 2024
248 12
249 31
250
251 2024
252 12
253 31
254
255 2024
256 12
257 31
258
259 2024
260 12
261 31
262
263 2024
264 12
265 31
266
267 2024
268 12
269 31
270
271 2024
272 12
273 31
274
275 2024
276 12
277 31
278
279 2024
280 12
281 31
282
283 2024
284 12
285 31
286
287 2024
288 12
289 31
290
291 2024
292 12
293 31
294
295 2024
296 12
297 31
298
299 2024
300 12
301 31
302
303 2024
304 12
305 31
306
307 2024
308 12
309 31
310
311 2024
312 12
313 31
314
315 2024
316 12
317 31
318
319 2024
320 12
321 31
322
323 2024
324 12
325 31
326
327 2024
328 12
329 31
330
331 2024
332 12
333 31
334
335 2024
336 12
337 31
338
339 2024
340 12
341 31
342
343 2024
344 12
345 31
346
347 2024
348 12
349 31
350
351 2024
352 12
353 31
354
355 2024
356 12
357 31
358
359 2024
360 12
361 31
362
363 2024
364 12
365 31
366
367 2024
368 12
369 31
370
371 2024
372 12
373 31
374
375 2024
376 12
377 31
378
379 2024
380 12
381 31
382
383 2024
384 12
385 31
386
387 2024
388 12
389 31
390
391 2024
392 12
393 31
394
395 2024
396 12
397 31
398
399 2024
400 12
401 31
402
403 2024
404 12
405 31
406
407 2024
408 12
409 31
410
411 2024
412 12
413 31
414
415 2024
416 12
417 31
418
419 2024
420 12
421 31
422
423 2024
424 12
425 31
426
427 2024
428 12
429 31
430
431 2024
432 12
433 31
434
435 2024
436 12
437 31
438
439 2024
440 12
441 31
442
443 2024
444 12
445 31
446
447 2024
448 12
449 31
450
451 2024
452 12
453 31
454
455 2024
456 12
457 31
458
459 2024
460 12
461 31
462
463 2024
464 12
465 31
466
467 2024
468 12
469 31
470
471 2024
472 12
473 31
474
475 2024
476 12
477 31
478
479 2024
480 12
481 31
482
483 2024
484 12
485 31
486
487 2024
488 12
489 31
490
491 2024
492 12
493 31
494
495 2024
496 12
497 31
498
499 2024
500 12
501 31
502
503 2024
504 12
505 31
506
507 2024
508 12
509 31
510
511 2024
512 12
513 31
514
515 2024
516 12
517 31
518
519 2024
520 12
521 31
522
523 2024
524 12
525 31
526
527 2024
528 12
529 31
530
531 2024
532 12
533 31
534
535 2024
536 12
537 31
538
539 2024
540 12
541 31
542
543 2024
544 12
545 31
546
547 2024
548 12
549 31
550
551 2024
552 12
553 31
554
555 2024
556 12
557 31
558
559 2024
560 12
561 31
562
563 2024
564 12
565 31
566
567 2024
568 12
569 31
570
571 2024
572 12
573 31
574
575 2024
576 12
577 31
578
579 2024
580 12
581 31
582
583 2024
584 12
585 31
586
587 2024
588 12
589 31
590
591 2024
592 12
593 31
594
595 2024
596 12
597 31
598
599 2024
600 12
601 31
602
603 2024
604 12
605 31
606
607 2024
608 12
609 31
610
611 2024
612 12
613 31
614
615 2024
616 12
617 31
618
619 2024
620 12
621 31
622
623 2024
624 12
625 31
626
627 2024
628 12
629 31
630
631 2024
632 12
633 31
634
635 2024
636 12
637 31
638
639 2024
640 12
641 31
642
643 2024
644 12
645 31
646
647 2024
648 12
649 31
650
651 2024
652 12
653 31
654
655 2024
656 12
657 31
658
659 2024
660 12
661 31
662
663 2024
664 12
665 31
666
667 2024
668 12
669 31
670
671 2024
672 12
673 31
674
675 2024
676 12
677 31
678
679 2024
680 12
681 31
682
683 2024
684 12
685 31
686
687 2024
688 12
689 31
690
691 2024
692 12
693 31
694
695 2024
696 12
697 31
698
699 2024
700 12
701 31
702
703 2024
704 12
705 31
706
707 2024
708 12
709 31
710
711 2024
712 12
713 31
714
715 2024
716 12
717 31
718
719 2024
720 12
721 31
722
723 2024
724 12
725 31
726
727 2024
728 12
729 31
730
731 2024
732 12
733 31
734
735 2024
736 12
737 31
738
739 2024
740 12
741 31
742
743 2024
744 12
745 31
746
747 2024
748 12
749 31
750
751 2024
752 12
753 31
754
755 2024
756 12
757 31
758
759 2024
760 12
761 31
762
763 2024
764 12
765 31
766
767 2024
768 12
769 31
770
771 2024
772 12
773 31
774
775 2024
776 12
777 31
778
779 2024
780 12
781 31
782
783 2024
784 12
785 31
786
787 2024
788 12
789 31
790
791 2024
792 12
793 31
794
795 2024
796 12
797 31
798
799 2024
800 12
801 31
802
803 2024
804 12
805 31
806
807 2024
808 12
809 31
810
811 2024
812 12
813 31
814
815 2024
816 12
817 31
818
819 2024
820 12
821 31
822
823 2024
824 12
825 31
826
827 2024
828 12
829 31
830
831 2024
832 12
833 31
834
835 2024
836 12
837 31
838
839 2024
840 12
841 31
842
843 2024
844 12
845 31
846
847 2024
848 12
849 31
850
851 2024
852 12
853 31
854
855 2024
856 12
857 31
858
859 2024
860 12
861 31
862
863 2024
864 12
865 31
866
867 2024
868 12
869 31
870
871 2024
872 12
873 31
874
875 2024
876 12
877 31
878
879 2024
880 12
881 31
882
883 2024
884 12
885 31
886
887 2024
888 12
889 31
890
891 2024
892 12
893 31
894
895 2024
896 12
897 31
898
899 2024
900 12
901 31
902
903 2024
904 12
905 31
906
907 2024
908 12
909 31
910
911 2024
912 12
913 31
914
915 2024
916 12
917 31
918
919 2024
920 12
921 31
922
923 2024
924 12
925 31
926
927 2024
928 12
929 31
930
931 2024
932 12
933 31
934
935 2024
936 12
937 31
938
939 2024
940 12
941 31
942
943 2024
944 12
945 31
946
947 2024
948 12
949 31
950
951 2024
952 12
953 31
954
955 2024
956 12
957 31
958
959 2024
960 12
961 31
962
963 2024
964 12
965 31
966
967 2024
968 12
969 31
970
971 2024
972 12
973 31
974
975 2024
976 12
977 31
978
979 2024
980 12
981 31
982
983 2024
984 12
985 31
986
987 2024
988 12
989 31
990
991 2024
992 12
993 31
994
995 2024
996 12
997 31
998
999 2024
1000 12
1001 31
1002
1003 2024
1004 12
1005 31
1006
1007 2024
1008 12
1009 31
1010
1011 2024
1012 12
1013 31
1014
1015 2024
1016 12
1017 31
1018
1019 2024
1020 12
1021 31
1022
1023 2024
1024 12
1025 31
1026
1027 2024
1028 12
1029 31
1030
1031 2024
1032 12
1033 31
1034
1035 2024
1036 12
1037 31
1038
1039 2024
1040 12
1041 31
1042
1043 2024
1044 12
1045 31
1046
1047 2024
1048 12
1049 31
1050
1051 2024
1052 12
1053 31
1054
1055 2024
1056 12
1057 31
1058
1059 2024
1060 12
1061 31
1062
1063 2024
1064 12
1065 31
1066
1067 2024
1068 12
1069 31
1070
1071 2024
1072 12
1073 31
1074
1075 2024
1076 12
1077 31
1078
1079 2024
1080 12
1081 31
1082
1083 2024
1084 12
1085 31
1086
1087 2024
1088 12
1089 31
1090
1091 2024
1092 12
1093 31
1094
1095 2024
1096 12
1097 31
1098
1099 2024
1100 12
1101 31
1102
1103 2024
1104 12
1105 31
1106
1107 2024
1108 12
1109 31
1110
1111 2024
1112 12
1113 31
1114
1115 2024
1116 12
1117 31
1118
1119 2024
1120 12
1121 31
1122
1123 2024
1124 12
1125 31
1126
1127 2024
1128 12
1129 31
1130
1131 2024
1132 12
1133 31
1134
1135 2024
1136 12
1137 31
1138
1139 2024
1140 12
1141 31
1142
1143 2024
1144 12
1145 31
1146
1147 2024
1148 12
1149 31
1150
1151 2024
1152 12
1153 31
1154
1155 2024
1156 12
1157 31
1158
1159 2024
1160 12
1161 31
1162
1163 2024
1164 12
1165 31
1166
1167 2024
1168 12
1169 31
1170
1171 2024
1172 12
1173 31
1174
1175 2024
1176 12
1177 31
1178
1179 2024
1180 12
1181 31
1182
1183 2024
1184 12
1185 31
1186
1187 2024
1188 12
1189 31
1190
1191 2024
1192 12
1193 31
1194
1195 2024
1196 12
1197 31
1198
1199 2024
1200 12
1201 31
1202
1203 2024
1204 12
1205 31
1206
1207 2024
1208 12
1209 31
1210
1211 2024
1212 12
1213 31
1214
1215 2024
1216 12
1217 31
1218
1219 2024
1220 12
1221 31
1222
1223 2024
1224 12
1225 31
1226
1227 2024
1228 12
1229 31
1230
1231 2024
1232 12
1233 31
1234
1235 2024
1236 12
1237 31
1238
1239 2024
1240 12
1241 31
1242
1243 2024
1244 12
1245 31
1246
1247 2024
1248 12
1249 31
1250
1251 2024
1252 12
1253 31
1254
1255 2024
1256 12
1257 31
1258
1259 2024
1260 12
1261 31
1262
1263 2024
1264 12
1265 31
1266
1267 2024
1268 12
1269 31
1270
1271 2024
1272 12
1273 31
1274
1275 2024
1276 12
1277 31
1278
1279 2024
1280 12
1281 31
1282
1283 2024
1284 12
1285 31
1286
1287 2024
1288 12
1289 31
1290
1291 2024
1292 12
1293 31
1294
1295 2024
1296 12
1297 31
1298
1299 2024
1300 12
1301 31
1302
1303 2024
1304 12
1305 31
1306
1307 2024
1308 12
1309 31
1310
1311 2024
1312 12
1313 31
1314
1315 2024
1316 12
1317 31
1318
1319 2024
1320 12
1321 31
1322
1323 2024
1324 12
1325 31
1326
1327 2024
1328 12
1329 31
1330
1331 2024
1332 12
1333 31
1334
1335 2024
1336 12
1337 31
1338
1339 2024
1340 12
1341 31
1342
1343 2024
1344 12
1345 31
1346
1347 2024
1348 12
1349 31
1350
1351 2024
1352 12
1353 31
1354
1355 2024
1356 12
1357 31
1358
1359 2024
1360 12
1361 31
1362
1363 2024
1364 12
1365 31
1366
1367 2024
1368 12
1369 31
1370
1371 2024
1372 12
1373 31
1374
1375 2024
1376 12
1377 31
1378
1379 2024
1380 12
1381 31
1382
1383 2024
1384 12
1385 31
1386
1387 2024
1388 12
1389 31
1390
1391 2024
1392 12
1393 31
1394
1395 2024
1396 12
1397 31
1398
1399 2024
1400 12
1401 31
1402
1403 2024
1404 12
1405 31
1406
1407 2024
1408 12
1409 31
1410
1411 2024
1412 12
1413 31
1414
1415 2024
1416 12
1417 31
1418
1419 2024
1420 12
1421 31
1422
1423 2024
1424 12
1425 31
1426
1427 2024
1428 12
1429 31
1430
1431 2024
1432 12
1433 31
1434
1435 2024
1436 12
1437 31
1438
1439 2024
1440 12
1441 31
1442
1443 2024
1444 12
1445 31
1446
1447 2024
1448 12
1449 31
1450
1451 2024
1452 12
1453 31
1454
1455 2024
1456 12
1457 31
1458
1459 2024
1460 12
1461 31
1462
1463 2024
1464 12
1465 31
1466
1467 2024
1468 12
1469 31
1470
1471 2024
1472 12
1473 31
1474
1475 2024
1476 12
1477 31
1478
1479 2024
1480 12
1481 31
1482
1483 2024
1484 12
1485 31
1486
1487 2024
1488 12
1489 31
1490
1491 2024
1492 12
1493 31
1494
1495 2024
1496 12
1497 31
1498
1499 2024
1500 12
1501 31
1502
1503 2024
1504 12
1505 31
1506
1507 2024
1508 12
1509 31
1510
1511 2024
1512 12
1513 31
1514
1515 2024
1516 12
1517 31
1518
1519 2024
1520 12
1521 31
1522
1523 2024
1524 12
1525 31
1526
1527 2024
1528 12
1529 31
1530
1531 2024
1532 12
1533 31
1534
1535 2024
1536 12
1537 31
1538
1539 2024
1540 12
1541 31
1542
1543 2024
1544 12
1545 31
1546
1547 2024
1548 12
1549 31
1550
1551 2024
1552 12
1553 31
1554
1555 2024
1556 12
1557 31
1558
1559 2024
1560 12
1561 31
1562
1563 2024
1564 12
1565 31
1566
1567 2024
1568 12
1569 31
1570
1571 2024
1572 12
1573 31
1574
1575 2024
1576 12
1577 31
1578
1579 2024
1580 12
1581 31
1582
1583 2024
1584 12
1585 31
1586
1587 2024
1588 12
1589 31
1590
1591 2024
1592 12
1593 31
1594
1595 2024
1596 12
1597 31
1598
1599 2024
1600 12
1601 31
1602
1603 2024
1604 12
1605 31
1606
1607 2024
1608 12
1609 31
1610
1611 2024
1612 12
1613 31
1614
1615 2024
1616 12
1617 31
1618
1619 2024
1620 12
1621 31
1622
1623 2024
1624 12
1625 31
1626
1627 2024
1628 12
1629 31
1630
1631 2024
1632 12
1633 31
1634
1635 2024
1636 12
1637 31
1638
1639 2024
1640 12
16
```

## D) flowchart

