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| Class Name: Date  Method signature: public boolean isValid() | | | |
| Test Case # | Requirement | Test description and Input Data | Expected result/output |
| 1 | Invalid negative year | * The system should reject negative years. Negative years are not valid in most date systems. * Test input: Date(1, 1, -2000) | false |
| 2 | Non-leap year, invalid February 29 | * February 29 is only valid in leap years. 2018 is a common year (not a leap year), so February 29 is invalid. * Test input: Date(2, 29, 2018) | false |
| 3 | Invalid month (outside valid range) | * The month value should be between 1 and 12. Testing for an invalid month (13). * Test input: Date(13, 5, 2024) | false |
| 4 | Valid date | * November 21, 2024, is a valid date. Testing to ensure the system correctly validates a standard valid date. * Test input: Date(11, 21, 2024) | true |
| 5 | Invalid day for June | * June has only 30 days, but this test checks if the system rejects June 31 as invalid. * Test input: Date(6, 31, 2024) | false |
| 6 | Valid leap year date for February 29 | * February 29 is valid in leap years. 2020 is a leap year, so February 29 should be valid. * Test input: Date(2, 29, 2020) | true |

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| Class Name: Profile  Method signature: public int compareTo(Profile TargetProfile) | | | |
| Test Case # | Requirement | Test description and Input Data | Expected result/output |
| 1 | Compare profiles by last name | * Compares profiles by last name (Hsu vs. Huang). Hsu is lexicographically smaller than Huang. * Test input: Profile1: Jayden Hsu (DOB: 01/01/1990), Profile2: Tianxiang Huang (DOB: 01/01/1990) | -1 |
| 2 | Compare profiles by first name | * Compares profiles with the same last name (Huang) and different first names. Jayden is lexicographically smaller than Tianxiang. * Test input: Profile3: Jayden Huang (DOB: 01/01/1990), Profile4: Tianxiang Huang (DOB: 01/01/1990) | -1 |
| 3 | Compare profiles with the same name and different DOB | * Compares profiles with the same name but different date of birth. 1985 is earlier than 1990 * Test input: Profile5: Jayden Hsu (DOB: 01/01/1985), Profile1: Jayden Hsu (DOB: 01/01/1990) | -1 |
| 4 | Compare profiles by last name | * Compares profiles by last name (Huang vs. Hsu). Huang is lexicographically greater than Hsu * Test input: Profile6: Tianxiang Huang (DOB: 01/01/1990), Profile1: Jayden Hsu (DOB: 01/01/1990) | 1 |
| 5 | Compare profiles by first name | * Compares profiles with the same last name (Hsu) but different first names. Tianxiang Huang is lexicographically greater than Jayden. * Test input: Profile7: Tianxiang Hsu (DOB: 01/01/1990), Profile8: Jayden Hsu (DOB: 01/01/1990) | 1 |
| 6 | Compare profiles with the same name and different DOB | * Compares profiles with the same name but different date of birth. 1995 is later than 1990. * Test input: Profile9: Jayden Hsu (DOB: 01/01/1995), Profile1: Jayden Hsu (DOB: 01/01/1990) | 1 |
| 7 | Compare identical profiles | * Compares two identical profiles (same first name, last name, and date of birth). Should return 0. * Test input: Profile10: Jayden Hsu (DOB: 01/01/1990), Profile11: Jayden Hsu (DOB: 01/01/1990) | 0 |