1)Craft a program that takes input in the format "DD MM YYYY". Ensure that the input for day, month, and year are valid integers within reasonable ranges.Based on the input date,

calculate the corresponding season.Divide the year into four quarters (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec).Calculate the total number of days passed in the quarter up to the given date.

Determine the season based on the total number of days passed:

● Spring: March 1st to May 31st
● Summer: June 1st to August 31st
● Autumn: September 1st to November 30th
● Winter: December 1st to February 28th (or 29th for leap years)

```
#include <stdio.h>

// Leap year check
int isLeap(int year) {
    return (year % 4 == 0 && year % 100 != 0) || (year % 400 == 0);
}

int main() {
    int day, month, year;
    int daysInMonth[] = {31,28,31,30,31,30,31,31,30,31,30,31};
    int dayOfYear = 0, quarterStartMonth, quarterDays = 0;
    int i;

    printf("Enter date (DD MM YYYY): ");
    scanf("%d %d %d", &day, &month, &year);

    // Validate year
    if (year < 1 || year > 9999) {
        printf("Invalid Year\n");
        return 1;
    }

    // Leap year adjust
    if (isLeap(year)) {
        daysInMonth[1] = 29;
    }

    // Validate month
    if (month < 1 || month > 12) {
        printf("Invalid Month\n");
        return 1;
    }
```

```
// Validate day
if (day < 1 || day > daysInMonth[month - 1]) {
    printf("Invalid Day\n");
    return 1;
}

// Calculate Day of Year
for (i = 0; i < month - 1; i++) {
    dayOfYear += daysInMonth[i];
}
dayOfYear += day;

// Determine Quarter
int quarter = (month - 1) / 3 + 1;
quarterStartMonth = (quarter - 1) * 3;

// Calculate days passed in quarter
for (i = quarterStartMonth; i < month - 1; i++) {
    quarterDays += daysInMonth[i];
}
quarterDays += day;

// Determine Season using Day-of-Year
char *season;

int leap = isLeap(year);

if (dayOfYear >= 60 && dayOfYear <= (151 + leap))
    season = "Spring";
else if (dayOfYear >= (152 + leap) && dayOfYear <= (243 + leap))
    season = "Summer";
else if (dayOfYear >= (244 + leap) && dayOfYear <= (334 + leap))
    season = "Autumn";
else
    season = "Winter";

printf("\nValid Date!\n");
printf("Day of Year: %d\n", dayOfYear);
printf("Quarter: %d\n", quarter);
printf("Days passed in Quarter: %d\n", quarterDays);
printf("Season: %s\n", season);

return 0;
```

}

output

Enter date (DD MM YYYY): 02 02 2024

Valid Date!
Day of Year: 33
Quarter: 1
Days passed in Quarter: 33
Season: Winter