

## Bug reports

### Quarter can go out of limits in Quarter(int quarter, int year) constructor

- **BR id:** #1
- **Tester:** Student
- **Date:** 2023-04-22
- **Description:** a new quarter is created even if the quarter provided in the constructor is  $< -1$  or  $> 5$
- **Method to be tested:** new Quarter(int quarter, int year)
- **Test cases**
  - new Quarter(5, 2023) (fails to throw IllegalArgumentException)
  - new Quarter(-1, 2023) (fails to throw IllegalArgumentException)

### Quarter can go out of limits in Quarter(int quarter, Year year) constructor

- **BR id:** #2
- **Tester:** Student
- **Date:** 2023-04-22
- **Description:** same as #1
- **Method to be tested:** new Quarter(int quarter, int year)
- **Test cases**
  - new Quarter(5, new Year(2023)) (fails to throw IllegalArgumentException)
  - new Quarter(-1, new Year(2023)) (fails to throw IllegalArgumentException)

### NullPointerException in Quarter(int quarter, Year year) constructor

- **BR id:** #3
- **Tester:** Student
- **Date:** 2023-04-22
- **Description:** providing null as the year object gives a NullPointerException that is raised from internal logic. Throwing IllegalArgumentException or handling null internally is required.
- **Method to be tested:** new Quarter(int quarter, Year year)
- **Test cases**
  - new Quarter(3, null) (fails with NullPointerException)

### NullPointerException in Quarter(Date date) constructor

- **BR id:** #4
- **Tester:** Student
- **Date:** 2023-04-22

- **Description:** providing `null` as the date object gives a `NullPointerException` that is raised from internal logic. Throwing `IllegalArgumentException` or handling null internally is required.
- **Method to be tested:** `new Quarter(Date date)`
- **Test cases**
  - `new Quarter(null)` (fails with `NullPointerException`)

### **NullPointerException in Quarter(Date date, TimeZone tz) constructor**

- **BR id:** #5
- **Tester:** Student
- **Date:** 2023-04-22
- **Description:** providing `null` as the tz object gives a `NullPointerException` that is raised from internal logic. Throwing `IllegalArgumentException` or handling null internally is required.
- **Method to be tested:** `new Quarter(Date date, TimeZone tz)`
- **Test cases**
  - `new Quarter(new Date(1672531200000L), null)` (fails with `NullPointerException`)

### **Quarter can go out of range in parseQuarter(String quarter)**

- **BR id:** #6
- **Tester:** Student
- **Date:** 2023-04-22
- **Description:** providing a quarter that is  $< -1$  or  $> 5$  in the quarter string does not fail and a quarter is created. `IllegalArgumentException` should be thrown.
- **Method to be tested:** `Quarter.parseQuarter(String quarter)`
- **Test cases**
  - `Quarter.parseQuarter("2023 Q5")` (fails to throw `IllegalArgumentException`)
  - `Quarter.parseQuarter("2023-Q5")` (fails to throw `IllegalArgumentException`)
  - `Quarter.parseQuarter("2023/Q5")` (fails to throw `IllegalArgumentException`)
  - `Quarter.parseQuarter("Q5 2023")` (fails to throw `IllegalArgumentException`)
  - `Quarter.parseQuarter("Q5-2023")` (fails to throw `IllegalArgumentException`)
  - `Quarter.parseQuarter("Q5/2023")` (fails to throw `IllegalArgumentException`)