45. What is `system.gc()`?

- A request to JVM to run Garbage collector to free up memory
- Doesn't always work

The java.lang.System.gc() method runs the garbage collector. Calling this suggests that the Java Virtual Machine expend effort toward recycling unused objects in order to make the memory they currently occupy available for quick reuse.
It is not a command but is a request. It is up to garbage collector to honor this request

46. Important String Methods?

Method	Description
char charAt(int index)	returns char value for the particular index
int length()	returns string length
String substring(int beginIndex)	returns substring for given begin index
String substring(int beginIndex, int endIndex)	returns substring for given begin index and end index
boolean contains(CharSequence s)	returns true or false after matching the sequence of char value
boolean equals(Object another)	checks the equality of string with object
boolean isEmpty()	checks if string is empty
String concat(String str)	concatinates specified string
String replace(char old, char new)	replaces all occurrences of specified char value
String replace(CharSequence old, CharSequence new)	replaces all occurrences of specified CharSequence
static String equalsIgnoreCase(String another)	compares another string. It doesn't check case.
String[] split(String regex)	returns splitted string matching regex
String[] split(String regex, int limit)	returns splitted string matching regex and limit
String intern()	returns interned string
int indexOf(int ch)	returns specified char value index
int indexOf(int ch, int fromIndex)	returns specified char value index starting with given index
int indexOf(String substring)	returns specified substring index
int indexOf(String substring, int fromIndex)	returns specified substring index starting with given index
String toLowerCase()	returns string in lowercase.
String toLowerCase(Locale l)	returns string in lowercase using specified locale.
String toUpperCase()	returns string in uppercase.
String toUpperCase(Locale l)	returns string in uppercase using specified locale.
String trim()	removes beginning and ending spaces of this string.
static String valueOf(int value)	converts given type into string. It is overloaded.

47. What's the difference between IS-A and HAS-A relationship?

- **IS-A** is based on inheritance → This thing is a type of that thing
- **HAS-A** relationships are based on usage
  - Ex: class A HAS -A B if code in Class A has a reference to an instance of class B

```
public Horse{
   private Halter myHalter;
   public void jump(){
            Sysout "im jumping"
```

- You are calling a Halter instance variable to use jump method that is coming from horse class - what this does is that it is means that Horse HAS-A Halter
- Horse class has a Halter, because Horse declares an instance variable of type Halter. When code invokes tie() on the Horse object's Halter instance variable -}
- Abstract class have constructors while interface don't have one