List(I) ==> AL, LL, Stack
Set(I) ==> HS, LHS, TS
Queue(I) ==> LL, PQ

Map(I)
==> If we want to store the data in the form of a key value pairs
==> HashMap
==> LinkedHashMap
==> TreeMap

key value pairs

HashSet ==> HashTable
HashMap ==> HashTable

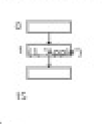
HashMap
==> Key Value pairs ==> Inside a HASH TABLE
==> Bucket Order is considered for HASH MAP

hs.add(45);

```
bucketIndex = hashCode(ele) && (bucketLength - 1)
bucketIndex = hashCode(45) && (bucketLength - 1)
bucketIndex = 45 && 15 --> ..........
```

hm.put(1, "Apple")

```
bucketIndex = hashCode(key) && (bucketLength - 1)
bucketIndex = 1 && 15 --> ...... ==> 0001 && 1111 ==>
0001 ==> 1
```



LinkedHashMap
==> the key value pairs and it maintains the insertion order
==> Hash Table + Doubly Linked List

When we have same keys then always the latest key value pair will be considered for HM or LHM or TM, bUT value duplication is allowed

R : 1, a : 1, j : 2, u:1

"Raju"
Find the first repeating character

I ==> R ==> If R is not available as a key in my MAP add that R with what as default value ==> 1
==> put(R, 1)
If R is alarat there, get that valeue + 1 ==> new value

get() ==> + 1 ==> 2

words[] = ["flower", "flow", "flight"]
what is the largest common prefix for all
Answer ==> fl

```
[ "flower", "flow", "flight" ]
startingWord = "flower"
iterate the array from i = 1
nextWord = "flow"

(nextWord.startsWith(startingWord))

(flow.startsWith(flow))
{
   reduce last character of startingWord
   flow
}

"flight".startsWith("fl")

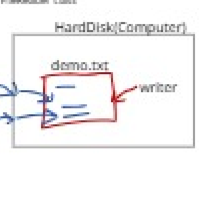
fl ==> Answer
```

File Handling
File ==> store the data
1) Create a file
2) Write the data in to file
3) Read the data from a file

Create a file ==> File class
Write the data to a file ==> FileWriter class
Read the data from a file ==> FileReader class

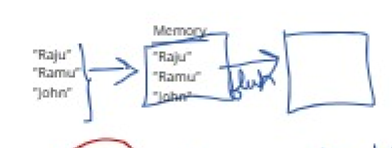
Problems with FileWriter

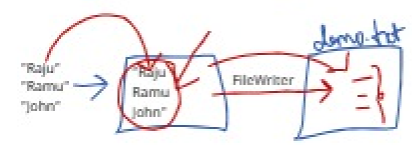
```
    FileWriter writer = new
FileWriter("demo.txt");
    writer.write("Raju\n");
    writer.write("Ramu\n");
    writer.write("John\n");
```
system call



Amount of times the java visitinf the file in the HardDisk
==> 3 times ==> more no of system calls

BufferedWriter ==> Buffer(Memory)





BufferedWriter ==> MemoryWriter ==> Used to write the data only to the MEMORY

BufferedWriter with FileWriter makes less no of system calls

BufferedWriter with FileWriter is also having a major problem, we can write only character data AND string data, but we cant write any boolean OR integer OR float

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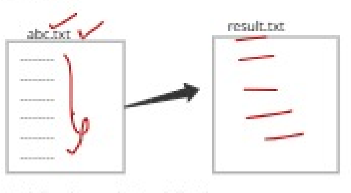
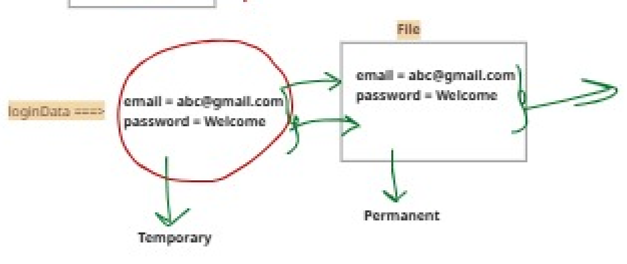
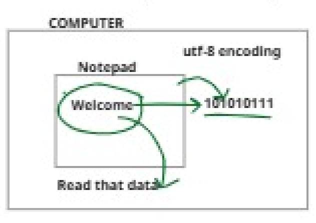


Serialization and Deserialization

Login Page
email:
pass:
Login



SERILAIZATION
Object(data) ==> File(Store)
Files(txt, pdf, ...) ==> Internally the data is kept in a binary format



Object Data will be converted in to a byte stream and then writing that byte data to a file is called as **SERIALIZATION**
To implement serialization we use 2 java classes:-
1) ObjectOutputStream
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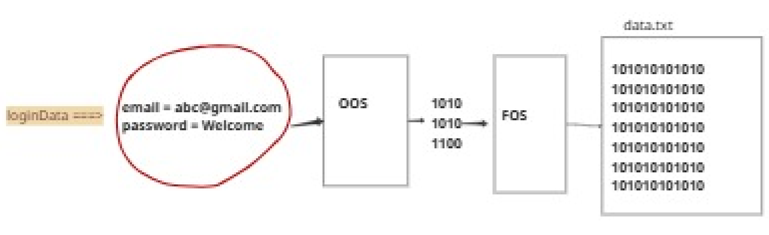

Java doesn't allow any object to be automatically converted ti any other format(byte format), if we want to convert then that class should implement one interface(Serializable)

A class that implements serializable interface, only the obejcts of that class are eleigible for SERIALIZATION

Serailizable ==> Marker Interface(zero methods)

[10, 12, 11, 11] ==> 4

pitches = [10, 12, 11, 11]
Arrays.sort(pitches)
==> [10, 11, 11, 12]

[10, 11, 11, 12]

```
if(pitches[right] - pitches[left] > 1)
{
   windoeLeft++;
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right - left  +  1 ==> 0 - 0 + 1 ==> 1
right - left +  1 ==> 1 - 0 + 1 ==> 2

maxLength = 3
```

10, 11, 11, 12, 17, 18, 19, 55

5>1

"abdde"

display the min count to make the string beautiful

2 rules:
1) no 2 chatrcters should be same next to each other
2) no 2 character should be one after the other

"az"

"abdde"

ab ==> az

azdye

2

"abdde" → 2

```
if(charAt(0) == charAt(1))
{
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}
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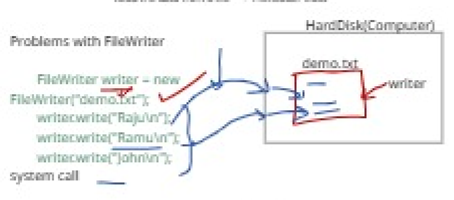

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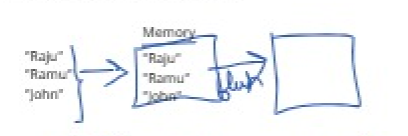

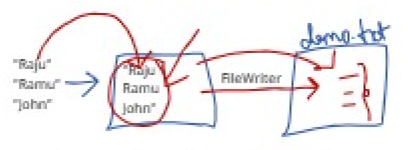

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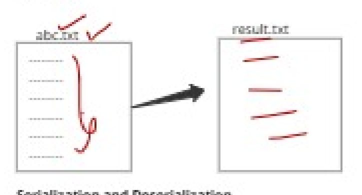
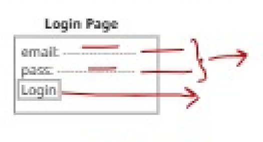
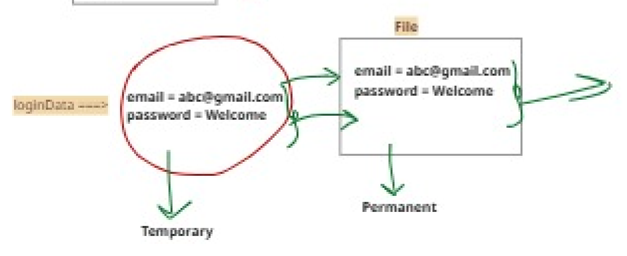


Serialization and Deserialization





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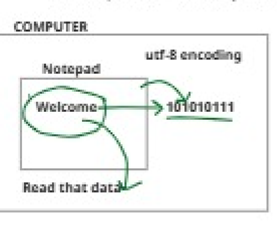

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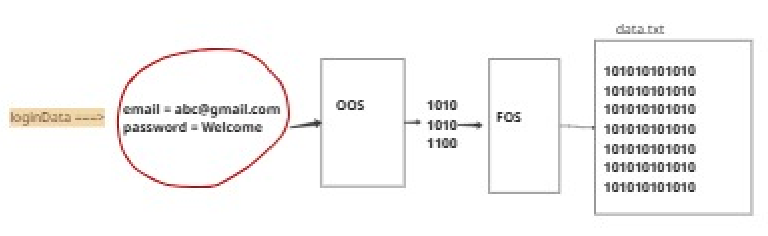

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