1. What is the difference between String, StringBuilder, StringBuffer?

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| String immutable  StringBuffer mutable thread safe  StringBuilder mutable unthread safe |

1. String s1 = “jack”; String s2 = new String(“jack”); Check s1==s2? S1.equals(s2)?

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| False, true |

1. Write “main” method

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| Public static void main(String args[]) {} |

1. What is multiple inheritance? Does java support it?

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| Java dosent support multiple inheritance. Only support multiple implement interface |

1. \*Different between Abstract class and Interface?

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| 1. Abstract class have constructor interface doesn’t have 2. Abstract class can have implement function but interface doesn’t (before java 8) 3. Interface can only have static variable |

1. \*\*What is marker interface? Given an example of maker interface

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| Interface have no implement function, like serializable, clonnable |

1. \*Write java program to explain static and dynamic polymorphism

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| Static: overload  Class A {  void function b(int c) {}  void function b(int c, int d) {}  }  Dynamic: override  Class A {  void function b() {}  }  Class C extends A {  void function b() {}  } |

1. \*\*\*Write java program to create Singleton design pattern

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| Class Singleton{  Private static Singleton singleton;  Public synchronized Singleton getInstance(){  If(singleton == null) {  Return new Singleton();  }else{  Return singleton;  }  }  @override  Public Object clone(){  Throw new exception  }  } |

1. Difference between ArrayList and LinkedList and their time complexity in insert and read?

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| Arraylist implement by array, linked list implement by linked node.  Arraylist insert is about O1, read is O1 by index  Linkedlist insert is O1, read is On |

1. \*\*\*If you define a customized “Student” class with id and name, you want to save it to a hash map as map key. What do you need to do in the Student class?

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| Override the hashcode and equals function  @override  Public string hashcode(){  Return id+“@”+”name”;  }  @override  Public Boolean euqals(Student stu){  If(stu.id == id && stu.name.euqals(name){ return true}  Else{ return false;}  } |

1. Explain how HashMap works internally

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| Internal key a linkedlist array. Each linkedlist is a bucket. When element insert. It will hash the key and mod with the array length. It will use this as the array index. The hashcode algorithm will key the array not too much empty or full. When the array is over full about 70%, it will double size. |

1. If you want to remove one element from an ArrayList, can you use for-loop? If not what will you use?

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| No, iterator.remove |

1. \*\*What is checked and unchecked exception? Given each an example

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| Checked -> compile  Unchecked -> runtime |

1. What are two ways to create a java thread?

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| Extend thread  Implement runnable |

1. \*\*\*What is an ExecutorService? Given an example of how you have used ExecutorService.

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| ExecturoService es = Exectuors.newFixedThreadpool(5);  es.exectue(); |

1. \*Given an ArrayList including all US states. Write a program using java 8 stream and lambda to return all states starting with letter ‘N’, for example New Jersey, New York.

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| List.stream.filter(e->e.chartAt(0) == ‘N’).collect(collectors.toList) |

1. What is functional interface

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| Java 8 new feature. Interface has only one abstract method |

1. Given an “Employee” table including columns: id, name, department. 1.Write a SQL to find the total num for each department. Your result should include two columns with column name as Department and TotalNum; 2.Only show TotalNum more than 5 people; 3) sorted in descending order according to department.

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| Select department as Department , count(\*) as TotalNum form Employee group by department having count(\*) > 5 order by department desc; |

1. Difference between final, finally, finalize

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| Final for variable, method, class  Finally for try catch  Finalize called when gc |

1. How to push your local code to your remote repository and update your own forked repository.

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| Git add  Git commit -m “comment”  Git push |

1. Draw a diagram to show the data flow chain in enterprise project. Diagram show include front-end, database, dao, service, controller.

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| Front-end -> controller -> service -> dao -> database |

1. \*Write a program to reverse a string.

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| String.toCharArray  For(int I = length-1; I >= 0; i--){  Stringbuilder.append(array[i])  } |