**Interface**

**Congnitive Type:Remember**

A **student** **studying** data structures found that an inteface **is also called as abtract data type (ADT)** and **provides specification on the augments each of the operations accepts**. The **student** was asked to design and implement data structure implementing **{ List,USet,Set}** instead of implementing the class directly .

**Select** the main **benefit** of using interface in the implementation of the data structure?

1. **Ensure Correctness**
2. Provide Implementation Inheritance
3. Provide Efficient Algorithm
4. Reduce Runnung time of the operation algorithem
5. Reduce the memory usage of the data structure
6. Provide Auxilary Space for the Operations of the interface

A **student** **completed** computer science course on data structures and found that an inteface **describes what the data structure does and provides a list of operations it supports**. The **student** design and implement data structure class which implements **{ List,USet,Set}**

**Select** the main **benefit** of using interface in the implementation of the data structure?

1. **Ensure Correctness**
2. Provide Implementation Inheritance
3. Provide Efficient Algorithm
4. Reduce Runnung time of the operation algorithem
5. Reduce the memory usage of the data structure
6. Provide Auxilary Space for the Operations of the interface

**Congnitive Type:Remember**

**Behaviour Descriptions**

A **software deleveper** was presented with following behaviour descriptions of an object during software training course: The object **deescribes what data structure does,can have multiple implementation, and provides specification about the type of supported operations** .

Select the **best** object(s) that exibit the above **behaviour description**.

1. Interface
2. Inplementation
3. Inheritance
4. Interface and Implementation
5. I
6. II
7. III
8. I,III

**Benefits**

**Behaviour Descriptions**

A **computer programmer** is considering implementing abstract data type which satisfy the folowing specifications : **allows dynmic swapping of implementation, have multiple implementation, allows polymophism**. The possible solution to satisfy the speciifcation are listed below

1. Implemenation
2. Interface
3. Inheritance

Which the above concept(s) is **best** for the programmer to apply

1. I
2. II
3. I,II
4. I,II,III

**Congnitive Type:Understand**

**Behaviour Descriptions**

A **computer science** students was tought in class that an interface can **defines method signatures and provides specification about the type of argument of the supported method**. **The inteface can also be used to achieve multiple inhertance**. The student was given a specification that an method M accepts integer as paramter and apply and an algorithm and reaturn an integer as the output. Three of the students presented their interface as follows

1. Student A : int **M**(int x)
2. Student B : **M**(int x)
3. Student C : **int** (int x)

Which of the student(s) provided the best **interface Specification**

1. I
2. II
3. III
4. II, III

**Congnitive Type:Application**

**Behaviour Descriptions**

A **software developer** considering designed and implemented **abstract data type (ADT)** to be use in software component to store data. The speficification rquired for the ADT was: **Allow multiple implementation**. Upon compiling the following error message was displayed : Only single inhiritance is supported. **The solutions** available to for the software developer to resolve this issue is as follows.

1. Implement Interface
2. Use Single Implementation Inheritance
3. Use Multiple Implementation Inheritance

Select the best **software solution** the software developer has to apply to resolve the issue

1. I
2. II
3. III
4. II, III

**Congnitive Type:Evaluate**

**Compare Time Complexities**

**Four programmers A,B,C D design and implemented data structure %s which implements %s . The runing time as a function of time complexity for the % operation algorithmns were analysed and the the result is is shown below: TA(n) =n^2 , TB(n) = n^3, TC(n) log n, TD(n) = n .**

**Choose the algorithem which is better in terms of Big-oh sense for the implementation of the software component .**

**A %s is considering using a third party data structure(TPDS) to implement generic data structure S<T> which should be able process about 10,000 data items and it should implement %s inteface. The computer processing time in relationship to time complexity for the %s operation of TPDS as follows. A1(n) =n^2 A2(n) = n^3, A3(n) log n, A4(n) = n .**

**In Big-Oh sense which thired party data structure should the choosen for the implemetation of the the generic data structure.**

**Four computer science student A1, A2,A3 ,A4 were ask to implement a data structure % whick implements %s to be used to design and implementation of software module. The respective algorethm for the students are in the order of n,n^2,logn ,log(logn).**

**Which of the algorithm will you you choose to implement a software component which require faster data processing time**