

CHRIST THE KING BOYS MATRIC HR. SEC. SCHOOL, KUMBAKONAM – 612 001

1. What is the difference between Interface and Implementation?

INTERFACE	IMPLEMENTATION
☞ Interface just defines what an object can do, but won't actually do it.	☞ Implementation carries out the instructions defined in the interface.

2. What are the differences between Pure and Impure Function?

PURE FUNCTION	IMPURE FUNCTION
☞ The return value of the pure functions solely depends on its arguments passed . Hence, if you call the pure functions with the same set of arguments, you will always get the same return values. They do not have any side effects.	☞ The return value of the impure functions does not solely depend on its arguments passed . Hence, if you call the impure functions with the same set of arguments, you might get the different return values Eg: random(), Date().
☞ They do not modify the arguments which are passed to them	☞ They may modify the arguments which are passed to them

3. Differentiate Constructor and Selectors

CONSTRUCTORS	SELECTORS
☺ Constructors are functions that build the abstract data type .	☺ Selectors are nothing but the functions that retrieve information from the data type.
☺ city = makecity (name, lat, lon)	☺ getname(city) ☺ getlat(city) ☺ getlon(city)

4. Differentiate Concrete Data type and Abstract Data type?

CONCRETE DATA TYPE	ABSTRACT DATA TYPE
☆ Concrete data types or structures (CDT's) are direct implementations of a relatively simple concept.	☆ Abstract Data Types (ADT's) offer a high level view (and use) of a concept independent of its implementation.
☆ Concrete data type is a data type whose representation is known .	☆ Abstract data type the representation of a data type is unknown .

4. State Algorithm vs Program

ALGORITHM	PROGRAM
✂ Algorithm helps to solve a given problem logically and it can be contrasted with the program.	✂ Program is an expression of algorithm in a programming language.
✂ Algorithm can be categorized based on their implementation methods, design techniques etc .	✂ Algorithm can be implemented by structured or object oriented programming approach/
✂ There are no specific rules for algorithm writing but some guidelines should be followed .	✂ Program should be written for the selected language with specific syntax .
✂ Algorithm resembles a pseudo code which can be implemented in any language.	✂ Program is more specific to a programming language.

5. List the differences between break and continue statement?

BREAK	CONTINUE
⇔ Break is used to terminate the execution of the loop.	⇔ Continue is not used to terminate the execution of loop.
⇔ It breaks the iteration.	⇔ It skips the iteration.

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⇔ When this statement is executed, control will come out from the loop and executes the statement immediate after loop.	⇔ When this statement is executed, it will not come out of the loop but moves/jumps to the next iteration of loop.
⇔ Break is used with loops as well as switch case.	⇔ Continue is only used in loops, it is not used in switch case.

6. Differentiate between ceil() and floor()

ceil()	floor()
♣ It is used to return the smallest integer greater than or equal to x.	♣ It is used to return the largest integer less than or equal to x.
♣ Syntax: math.ceil(x)	♣ Syntax: math.floor(x)
♣ Eg: x=15.7 print(math.ceil(x))	♣ Eg: x=15.7 print(math.floor(x))
♣ Output: 16	♣ Output: 15

7. Differentiate between del and remove()

del	remove()
✧ del statement is used to delete elements whose index is known. It can also be used to delete entire list.	✧ remove() function is used to delete elements of a list if its index is unknown.
✧ Syntax: del List [index of an element] # to delete a particular element del List [index from : index to] # to delete multiple elements del List # to delete entire list	✧ Syntax: List.remove(element) # to delete a particular element
✧ Eg: MySubjects = [11,12,13] del MySubjects[1] print (MySubjects)	✧ Eg: MyList=[11,12,13] MyList.remove(13) print(MyList)
✧ Output : [11,13]	✧ Output : [11,12]

8. Explain the difference between del and clear() in dictionary with example?

del	clear()
⊕ del keyword is used to delete a particular element.	⊕ The clear() function is used to delete all the elements in a dictionary.
⊕ Syntax: del dictionary_name[key]	⊕ Syntax: dictionary_name.clear()
⊕ Eg: Dict={'Rollno':12101,'Name':'Meena'} print(Dict)	⊕ Eg: Dict={'Rollno':12101,'Name':'Meena'} print(Dict)
⊕ Output: {'Rollno':12101,'Name':'Meena'} del Dict['Rollno']	⊕ Output: {'Rollno':12101,'Name':'Meena'} Dict.clear()
⊕ Output: {'Name':'Meena'}	⊕ Output: { }

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9. What is the difference between the List and Dictionary?

LIST	DICTIONARY
± List is an ordered set of elements .	± A dictionary is a data structure that is used for matching one element (Key) with another (Value) .
± The index values can be used to access a particular element .	± Dictionary key represents index . Remember that, key may be a number or a string.
± Lists are used to look up a value	± A dictionary is used to take one value and look up another value .

10. What is the difference between Network and Hierarchical Data Model?

Network Data Model	Hierarchical Data Model
◊ In a Network model, a child may have many parent nodes . It represents the data in many-to-many relationships .	◊ In hierarchical model, a child record has only one parent node .
◊ This model is easier and faster to access the data .	◊ This Model is mainly used in IBM Main Frame Computers .

11. What is the difference between Select and Project command?

SELECT COMMAND	PROJECT COMMAND
◊ The SELECT operation is used for selecting a subset with tuples according to a given condition .	◊ The PROJECTION eliminates all attributes of the input relation but those mentioned in the projection list .
◊ Select filters out all tuples that do not satisfy C.	◊ The projection method defines a relation that contains a vertical subset of Relation.
◊ Eg: $\sigma_{\text{course}} = \text{"Big Data"} (\text{STUDENT})$ This will display only the Big Data from the Course attribute.	◊ Eg: $\Pi_{\text{course}} (\text{STUDENT})$ This will display only the Course attribute from the STUDENT Table. It will remove the duplicate rows from the result.

9. Differentiate Unique and Primary Key constraint?

UNIQUE CONSTRAINT	PRIMARY KEY CONSTRAINT
↗ There can be more than one unique constraint in the table .	↗ There can be only one Primary Key in the table .
↗ It can be a NULL value.	↗ It cannot be a NULL value.
↗ Eg: ↗ CREATE TABLE stud (regno integer NOT NULL UNIQUE, mobileno integer NOT NULL UNIQUE);	↗ Eg: ↗ CREATE TABLE stud (regno integer NOT NULL PRIMARY KEY, mobileno integer NOT NULL);
↗ It uniquely identifies the record in the table but it is not a primary key	↗ It uniquely identifies the record in the table.

10. Write the difference between table constraint and column constraint?

TABLE CONSTRAINT	COLUMN CONSTRAINT
⊗ Table constraint applies to a group of one or more columns .	⊗ Column constraint applies only to individual column .

11. What is the difference between SQL and MySQL?

SQL	MYSQL
✓ SQL means Structured Query Language	✓ It is a RDBMS used to store and retrieve the data from the database .

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✓ It is a Query Language .	✓ It is a Database Software
✓ It contains commands, keywords, arguments etc.,	✓ It is a type of DBMS
✓ It is not freely available .	✓ It is an open source

12. What is the difference between the write mode and append mode?

Write mode	Append mode
☒ Open a file for writing .	☒ Open for appending at the end of the file without truncating it.
☒ Creates a new file if it does not exist or truncates the file if it exists.	☒ Creates a new file if it does not exist.

13. What is the difference between csv.reader() and DictReader()?

csv.reader and csv.writer	csv.DictReader and csv.DictWriter
☒ It works with Tuple	☒ It works with Dictionary
	☒ It takes additional argument called fieldnames that are called as Dictionary Keys .

14. State the difference between Excel and CSV file?

EXCEL	CSV
⊕ Excel is a binary file that holds information about all the worksheets in a file, including both content and formatting	⊕ CSV format is a plain text format with a series of values separated by commas.
⊕ XLS files can only be read by applications that have been especially written to read their format, and can only be written in the same way.	⊕ CSV can be opened with any text editor in Windows like notepad, MS Excel, OpenOffice, etc.
⊕ Excel is a spreadsheet that saves files into its own proprietary format viz. xls orxlsx	⊕ CSV is a format for saving tabular information into a delimited text file with extension .csv
⊕ Excel consumes more memory while importing data	⊕ Importing CSV files can be much faster, and it also consumes less memory.

15. What is the difference between Python and C++?

PYTHON	C++
♠ Python is typically an "interpreted" language .	♠ C++ is typically a "compiled" language .
♠ Python is a dynamic typed language .	♠ C++ is compiled statically typed language .
♠ Data type is not required while declaring variable	♠ Data type is required while declaring variable.
♠ It can act both as scripting and general purpose language .	♠ It is a general purpose language .

16. What is the difference between Compiler and Interpreter?

COMPILER	INTERPRETER
☒ It first translates the source program into object program and then object program into executable program.	☒ It compiles and executes at the same time.
☒ It requires more memory space.	☒ It requires only less memory space compared to compiler.
☒ It is comparatively faster than interpreter.	☒ It is not so fast as compiler.
☒ It is a two step process.	☒ It is a one step process.
☒ Intermediate code is generated.	☒ Intermediate code is not generated.

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17. Write the difference between the following functions: `plt.plot([1,2,3,4])`, `plt.plot([1,2,3,4], [1,4,9,16])`.

<code>plt.plot([1,2,3,4])</code>	<code>plt.plot([1,2,3,4], [1,4,9,16])</code>
<ul style="list-style-type: none"> In <code>plt.plot([1,2,3,4])</code> a single list or array is provided to the <code>plot()</code> command. 	<ul style="list-style-type: none"> In <code>plt.plot([1,2,3,4], [1,4,9,16])</code> the first two parameters are x and y co-ordinates.
<ul style="list-style-type: none"> matplotlib assumes it is a sequence of y values, and automatically generates the x values. 	<ul style="list-style-type: none"> This means we have 4 co-ordinates. They are (1,1),(2,4),(3,9),(4,16).
<ul style="list-style-type: none"> Since python ranges start with 0, the default x vector has the same length as y but starts with 0. Hence the x data are [0,1,2,3]. 	