1.What is the primary goal of manual testing?

a)To find defects in software

b)To automate the testing process

c)To reduce the time required for testing

d)To increase the efficiency of developers

2.Which of the following is NOT a phase of the manual testing process?

a)Test Planning

b)Test Execution

c)Test Automation

d)Test Closure

3.Which type of testing involves testing the software as a whole to ensure that all components work together?

a)Unit Testing

b)Integration Testing

c)System Testing

d)Acceptance Testing

4.Which testing technique involves testing a system's functionality without knowing its internal code structure?

a)White-box testing

b)Black-box testing

c)Gray-box testing

d)Glass-box testing

5.What is exploratory testing?

a)Testing based on pre-defined test cases

b)Testing without any specific test cases or plans

c)Testing only the critical functionalities

d)Testing performed by an external team

6.What is the result of my\_list[2] if my\_list = [10, 20, 30, 40]?

A) 10

B) 20

C) 30

D) 40

7.Which method is used to add an element to the end of a list in Python?

A) append()

B) insert()

C) extend()

D) add()

8.What does my\_list[::-1] do in Python?

A) Reverses the list

B) Returns the last element of the list

C) Sorts the list in descending order

D) Returns a copy of the list

9.Which data structure is used to store unique elements in Python?

A) List

B) Tuple

C) Set

D) Dictionary

10.How do you check if an element is present in a set?

A) Using contains()

B) Using in keyword

C) Using has()

D) Using exists()

11.What is the data type of the result in the following expression: 10 / 2?

a)int  
b)float  
c)str  
d)bool

12.Which data type is used to represent a sequence of characters in Python?

a)int  
 b) float  
 c)str  
 d)list

13.What is the output of bool("False")?

a) False

b)True  
c)TypeError  
d )None

14.In Python, which data type is used to store an ordered collection of elements with no duplicate values?

a) tuple  
b) list  
c) set  
d) dictionary

15.What is the result of the expression 3 \*\* 2?

a) 5  
b) 6

c)9

d) 27

16.What command is used to initialize a Git repository locally?

a) git clone

b) git init

c) git commit

d) git push

17.How can you check the status of your changes in a Git repository?

a) git status

b) git check

c) git diff

d) git log

18.What command is used to stage files for a commit in Git?

a) git add

b) git stage

c) git commit

d) git push

19.What is the purpose of forking a repository on GitHub?

a) To create a new branch in the original repository

b) To merge changes from one repository to another

c) To copy a repository under your GitHub account

d) To revert changes in a repository

20.What is a Pull Request used for in GitHub?

a) Requesting changes to be pulled into a repository

b) Submitting changes for approval and merging

c) Deleting branches in a repository

d) Checking the status of commits in a repository

1.What is git and GitHub?

**Git:**

* GIT stands for global information tracker
* Git is a distributed version control system where the project files are stored at multiple places
* Git can be defined as a version control system.
* It is mainly used for two purposes that is; **collaboration** and **tracking** **changes**
* Here the tracking changes means that we can get back to the previous version if needed
* And also multiple people can work on the different branches (features) simultaneously without any problem

**GitHub:**

* GitHub can be defined as a server that stores all the repositories (repo)
* Here the repo means the folder that contains all the files and folders related to the project where people can access it if required

**The,** collaboration in git means that more that one people can work on a single project without any interruption.

2.What is CVCS and DVCS ?

* **CVCS** stands for centralized version control system
* **DVCS** stands for distributed version control system
* The name CVCS itself says that it is a centralized VCS where all the files and folders are stored
* Before the introduction of the Distributed VCS (git) developers used to work on a project where they are connected through a centralized VCS
* But the main disadvantage of this Centralized VCS is that the multiple people cannot work together simultaneously
* If a developer2 wants to add a new feature he needs to wait until the developer1 completes the task and pushed into the Centralized VCS
* Here the disadvantage is that there is no parallelism where people cannot work or collab together
* And also if the Centralized VCS is failed/down the project or tasks are stopped until it is further repaired.
* If a developer adds new features to the existing code and sent to production or customer and assume that due to some reason the feature doesn’t work good.
* In this case the developer cannot get back to the older version and need to check or modify the code manually. This takes more time

So as to eliminate all the problems faced by the developers the distributed VCS is introduced where the developers can collab and track changes in their code

* Assume the above scenario where the feature doesn’t work for the customer
* At this point the developer can get back to the older or previous versions if required
* This helps the customer from accessing the previous version and also the developer gets some time to fix or upgrade the new version
* In this way the DVCS eliminates all the disadvantages of the CVCS

3.Create a project of any and push the project

The below gives the commands for pushing the project onto the github:

* Git init
* Git add filename1, filename2
* Git commit -m “committed message”
* Git push origin main

4.Define Software Development Life Cycle (SDLC) and briefly explain its primary phases.

* As the name explains it is a process used by the software development team in the IT industry used to design, develop, test and deploy the product/project
* This process contains a sequence of steps in completing a product/project
* This ensures a quality output
* This contains various phases such as:

1. **Requirement analysis and gathering**
2. **System design**
3. **Implementation**
4. **Testing**
5. **Deployment**
6. **Maintenance**

There are various types of methodologies such as:

Waterfall method, Agile method, V-model, spiral model

1. **Requirement Analysis and Gathering**: This phase involves understanding the needs and expectations of the stakeholders. It includes collecting detailed requirements, both functional and non-functional, to ensure the system will meet the users needs and business goals. Clear documentation of these requirements is essential for the success of the project.
2. **System Design**: Based on the gathered requirements, system architects and developers create a blueprint for the system's architecture. This phase defines the software's structure, including its components, user interfaces, databases. It also focuses on how the system will be implemented to meet the specified requirements.
3. **Implementation**: The design is translated into code during the implementation phase. Developers write the software, build components, and integrate them into the system. It involves choosing correct programming languages, tools, and technologies to make the design into a working product.
4. **Testing**: In this phase, the software is thoroughly tested to find and fix any bugs or issues. Various testing methods, such as unit testing, integration testing, and user acceptance testing, are used to ensure the software functions correctly, meets the requirements, and is free of defects.
5. **Deployment**: Once the software is tested and ready, it is deployed to the production environment. This phase includes installation, configuration, and making the system available for users. Deployment can be done in stages, especially for large systems, to ensure a smooth transition.
6. **Maintenance**: After deployment, the software enters the maintenance phase, where it is continuously updated and improved. This includes fixing bugs, addressing performance issues, and adding new features based on user feedback and evolving requirements. Maintenance ensures the system remains reliable and functional over time.

5.What are the main objectives of the Requirements Gathering phase in SDLC?

The requirement gathering phase in the SDLC is the main phase of overall cycle. This plays a key role in the whole s/w development cycle.

* The main objective of this phase isto know the requirements and needs of the client
* This not only contains about the needs of the client but also the technologies that to be used by the team as required by the client.
* Through this phase a clear and good coordination and relationship is maintained between the project manager and the client which results in a quality output of product

6.Explain the significance of the Design phase in the SDLC process.

This is the second phase in the SDLC process. This is so significant because,

* This phase contains all the details of the project
* This contains the tools and technologies that need to be used by the team
* The tools used are generally decided by the project manager based on the client requirement
* This phase plays a key role in designing the s/w

7.Discuss the importance of thorough Testing during the SDLC.

This is the vital phase in the overall development of the product/project

* Testing plays a key role in finding the errors and defects in the s/w
* This phase helps in identifying and resolving the issues in the s/w
* The bugs found early can be resolved easily with a less cost
* The cost of fixing the bugs is logarithmic so the bugs found earlier can be resolved at a low cost
* The main motive of this phase is to detect bugs as early as possible and rectify them
* If the bugs found later this can be fixed but for a huge cost

8.Differentiate between Waterfall and Agile methodologies in SDLC. Highlight the advantages and disadvantages of each.

|  |  |
| --- | --- |
| **Waterfall method** | **Agile method** |
| * This is the most basic model used in the SDLC cycle * As the name **waterfall** suggests that the changes cannot be adopted later once the design is done * In this method the process is performed step by step and we cannot proceed further without completing the current stage * This affects the time and next stage cannot proceed further * This is widely used for smaller projects * Used for smaller projects where requirements are predefined * Errors are less * Errors found later cannot be fixed | * This is the advanced model used at present * In this model the changes can be adopted in the later stages also * In this method the project is divided into smaller steps and once the step is completed the next step is performed * Through this the steps can be performed efficiently * This is widely used model at present and is used for larger projects * Used for larger projects where there is requirement of changes in the future * Errors are more * Errors found later can be fixed |

9.Write a Python program to calculate the area of a rectangle using user input for length and width.

Length = float(input(“enter the length value”))

width = float(input(“enter the width value”))

area = length \* width

print(“the area of the rectangle is”,area)

10.What is devops ?

DevOps can be defined in many ways such as:

* It is a methodology
* It is a set of processes and tools
* It is a culture
* DevOps can be defined as the process of **“improving the product/project delivery** **by ensuring automation, quality in place with continuous monitoring and continuous testing**

11.What is need of devOps?

DevOps plays a key role in the IT industry

* Previously when there is no devops introduced there are lot of disadvantages
* Consider the below scenario:

In an industry there are a lot of people included in developing the project/product

Previously when there is no DevOps the developer used to develop the code and pushes it to the VCS

* Now for checking the project works globally the process of testing need to be done on a server

1. System Admin
2. BRE (Build and release engineer)
3. Server admin

The code need to be tested on a server for checking the access and proper functioning

* The system admin develops the server
* The build and release engineer deploys the project onto to the app server but for doing this the app server need to be present which is developed by the server admin

**For** doing all the above process it takes a lot of time without the concept of DevOps

With DevOps this process is automated such as testing, deploying and monitoring the process

* The devops is used to bridge the gap between the development and operations teams

12.What are the devOps tools?

The DevOps includes a various process such as:

* Planning/coding, building, testing, integration, deployment, operations and monitoring
* The above mentioned are the stages of the DevOps
* For performing the above operations there are wide variety of tools available.

Some of them are as mentioned below:

1. **Planning:** Git or JIRA
2. **Building:** Maven, Gradle, Apache ANT
3. **Testing:** Selenium
4. **Integration:** Jenkins
5. **Deployment:** Docker, Kubernetes
6. **Operations:** Ansible
7. **Monitoring:** Terraform

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Break** | **Continue** | **Pass** |
| **Definition** | Break can be defined as an inbuilt keyword that is used in the loops to exit a loop (for, while) when a certain condition is satisfied | Continue can be defined as the built-in keyword used in the loops to skip an iteration in the loops when a condition is matched | Pass statement as the name says it executes the next statement without considering about the condition |
| **Example** | for i in range(5):  if i = 3:  break  statement1  statement2 | for i in range(5):  if i = 3:  continue  statement1  statement2 | for i in range(5):  if i = 3:  pass  statement1  statement2 |
| **Output** | The above example exits the code if the value of i is 3 and doesn’t execute the next lines of code | The above example doesn’t exit the code instead it skips the next statement of code when the value of the i is 3 | For the above example the next statements after the pass statement are executed without considering the condition |

13.Difference b/w break continue and pass ?

14. d/w remove , delete, pop and write an example program in

python to demonstrate 3 of them.?

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Remove** | **Delete** | **Pop** |
| **Definition** | This method is used to remove an item in the list.  We can also remove the item by specifying the value | This method is used to delete the list completely | This method is used to remove the elements from the list.  By default, this method removes the last element from the list |
| **Example** | lst = [1,”hi”,3.3,9]  lst.remove(3.3)  print(lst) | lst = [1,”hi”,3.3,9]  del list  print(lst) | lst = [1,”hi”,3.3,9]  lst.pop()  print(lst) |
| **Output** | For the above example the element 3.3 is removed from the list and the list with remaining elements are printed. Here we can only specify the value | for the above example the list is completely deleted and while printing the list we get an error | for the above example the element at the last index is deleted by default. We can also specify the index value that we wanted to delete. Here we can only specify the index of the item |

15. D/w append and extend..?

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Append** | **Extend** |
| **Definition** | This method is used to add the elements in the list. By default, it adds the elements at the last index of the list. This is used to add single element to the list | This is the method used to join two or more lists. And this is used for adding multiple items to a list |
| **Example** | fruits = [“banana”,”apple”,”grapes”]  a = fruits.append(“mango”) | fruits1 = [“apple”,”banana”]  fruits2 = [“mango”,”grapes”]  a = fruits1.extend(fruits2) |
| **Output** | For the above example the output is it prints the list with the all the elements including mango at the end of the list | For the above example the output is that the items in the fruits2 are added to the first list i.e., fruits1 |