

1. What is Django? and why it is used?

- Django is a high-level, open-source web framework for web applications based on Python.
- Django is used because it uses MVT(Model-View-Template) structure to develop the web applications.
- It has built-in admin panel for easy database management.
- It has built-in authentication and authorization.
- It can handle form validation.
- Because of MVT structure, Template part is used for displaying the result to user, View handles the logic and it acts as a bridge between Model and Template, Model is used for database.

2. Is Django backend or frontend?

- Django is a backend framework for web development but its Template feature is used to handle frontend part also.
- Mostly it is backend.

3. What is the difference between Python and Django?

Python	Django
It is a programming language	It is a web framework
It uses object-oriented programming approach.	It uses Model View Template (MVT) approach.
It is used in web applications, AI, Data analytics, Game development.	It is used in Web applications.

4. What architecture does Django use?

- Django uses MVT (Model View Template) architecture.
- Model:
Model defines the database tables as model of your application.
It defines tables and relations and interacts with database.
Each model defines the table of database and its attributes defines the fields of that table.
It is implemented in models.py file and registered in admin.py file.
- View:
View is used for logical part of the web application and it controls the flow between Model and Template.
It takes a request and returns the response.
It fetches the data through model and pass it to the Template.
- Template:
Template defines the frontend part of web applications.
It is used to display the result or web page to the user.
It contains HTML tags for display the web page and python code for logic.

5. What is the difference between CharField and TextField in Django?

- CharField is used for storing small to medium size of the string.
- It has maximum length of 255 characters and it is compulsory to mention max length.
- TextField is used for storing big size of string.
- It stores more than 255 characters.

6. What is the usage of “Django-admin.py” and “manage.py”?

- admin.py command is used for whole system while manage.py command used for specific application or project.
- Django-admin.py is used for creating application, to check django version installed in your system
- Django manage.py is used for run server, to make migrations, create superuser, to start applications.

7. What’s the difference between a project and an app in Django?

- Project refers to the whole web application.
- It contains application’s settings and configurations.
- One project can have multiple apps.
- App is a module of a project.
- It contains the functionalities of that particular application.

8. How to check the version of Django installed on your system?

- To check the version of Django installed in system, use the following command:
django-admin --version

9. How do you create a Django project?

- To create a Django project use the following command:
django-admin startproject projectname
- example,
django-admin startproject project_school

10. Describe Django ORM.

- ORM stands for Object Relational Mapping.
- It is the built-in feature of Django and used to interact with database models.
- It uses python code and its object-orientes programming approach to define the database tables and its fields as a model(class) and properties(attributes).
- It is also used for filtering the data from database.

11. Explain the file structure of a typical Django project.

```
student_management (Outer Project Folder)
  app_admin (Application Folder)
    project_student_management (Inner Project Folder)
      __init__.py
      asgi.py
      settings.py
      urls.py
      wsgi.py
    manage.py
    templates (HTML files)
  student_VENV (virtual environment)
  requirements.txt
```

- `__init__.py`: The folder which contains this file is considered as python package.
- `settings.py`: It contains all information about project like installed applications, database information, templates, static folders, media folders etc.

12. What is CRUD?

- CRUD stands for Create, Read, Update, Delete.
- It is used to perform operations on data of database.

13. What is a QuerySet?

- Query set is use to filter and order the data from database.
- Filter from QuerySet is used as where and limit statement where as order is used for getting the data in ascending or descending order.

14. Difference between Django OneToOneField and ForeignKey field?

- OneToOneField represent the one-to-one relationship whereas ForeignKey represents the many-to-one relationship.

15. Explain Q objects in Django ORM?

- Q objects is used to combine the queries using logical operators.

16. Difference between Django's filter() and get() methods.

- `filter()` method returns the queryset (more than one record) while `get()` method returns only one record that matches the condition.
- `filter()` does not give error if no records found while `get()` gives error if condition does not match.

17. How to make QR queries in Django ORM?

- You need to import Q object from models.
- `q1 = Q(user_type="student") | Q(user_type="teacher")`
- `q2 = Q(subject="Maths")`
- `users = User.objects.filter(q1|q2)`

18. How to order a QuerySets in ascending or descending order?

- `name = student.objects.order_by('name')`
This will return the name from student model in ascending order.
- `name = student.objects.order_by('-name')`
This will return the name from student model in descending order.

19. What is the difference between null=True and blank=True?

- `null=True` is used to define that the field can have NULL value in database.
- `blank=True` is used to define that user can submit the form without giving the value of that particular field.

20. What is difference contains and icontains in Django?

- `contains` and `icontains` used to perform case-sensitive and case-insensitive results from database.
- `contains` used to search for data if you want search the result to be case-sensitive.
- `icontains` used to search for data if you want to search the result to not be case-sensitive.