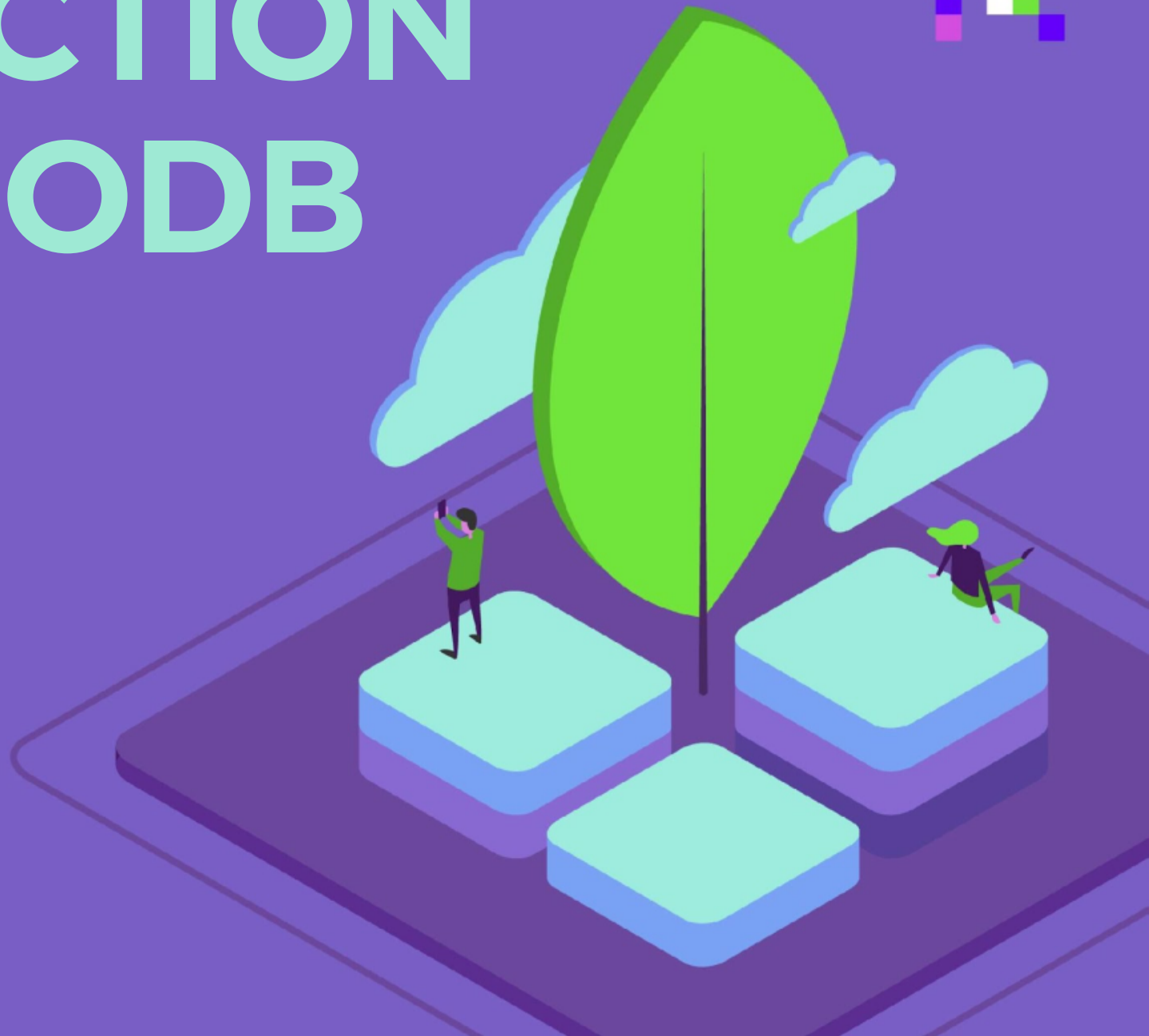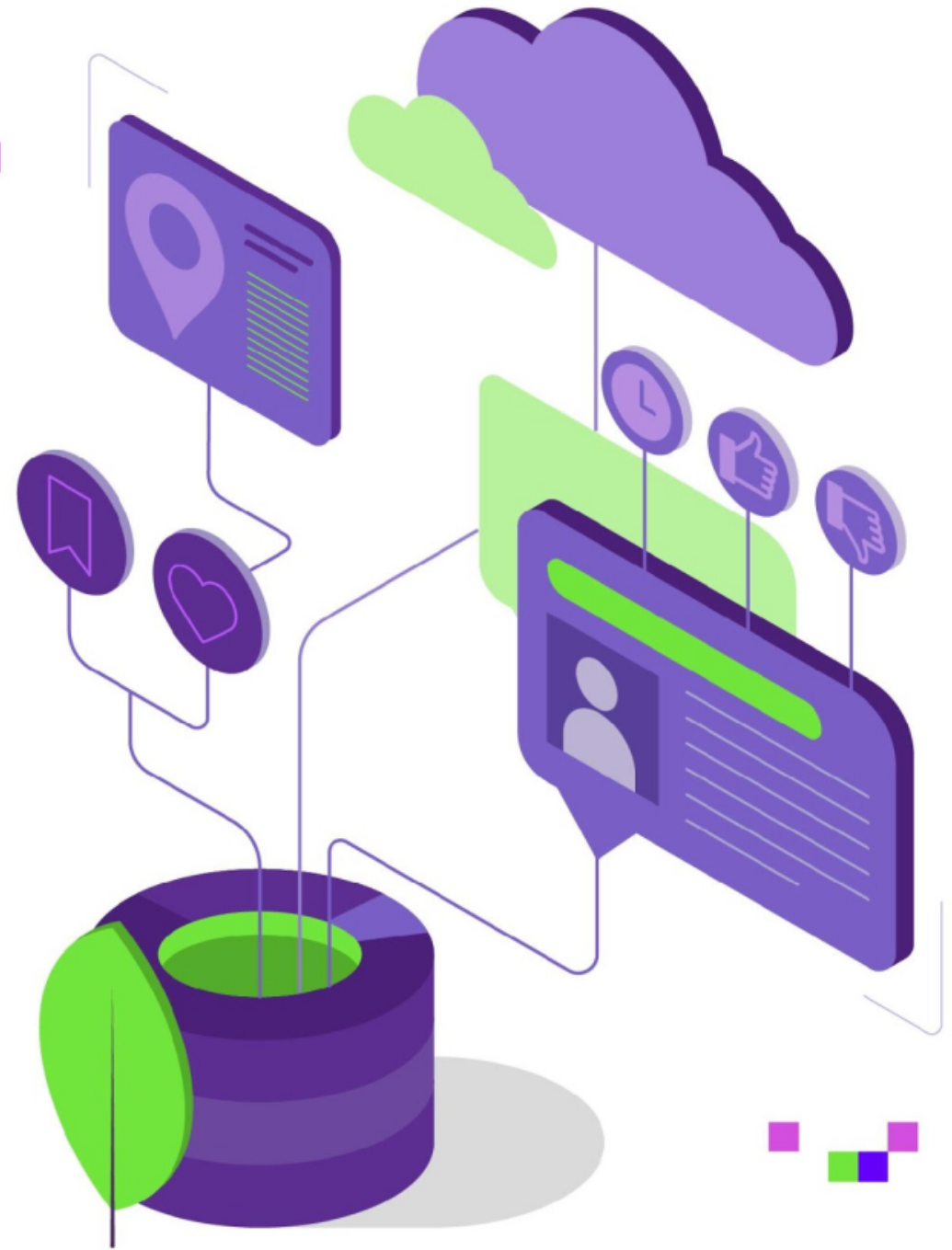# INTRODUCTION TO MONGODB

DATABASE DESIGN

Database Design

Data Types:

- String
- Integer
- Float
- Boolean

Database Design

Data Types:

- String
- Integer
- Float
- Boolean

```
{
        "_id" : ObjectId("5c968e01cc7efa53af5dae2b"),
        "name" : "connor",
        "age" : 32,
        "gpa" : 3.6,
        "current_student" : false
}
```

Database Design

Primary Keys:

- Unique for all documents in a collection
- Cannot have null values

Database Design

Primary Keys:

```
{ "_id" : ObjectId("5c92eb48cc7efa53af5dae21"),
 "name" : "richard" }
```

Database Design

Primary Keys:

```
{ "_id" : ObjectId("5c92eb48cc7efa53af5dae21"),
 "name" : "richard" }
```

```
{ "_id" : ObjectId("5c92eca2cc7efa53af5dae22"),
 "user_id" : 3104, "name" : "richard" }
```

Database Design

Establishing Relationships in Data:

- One to One
- One to Many
- Many to Many

Database Design

Establishing Relationships in Data: One to One

```
{
        "_id" : ObjectId("5c943413cc7efa53af5dae24"),
        "user_id" : 3173,
        "name" : "helen",
        "age" : 32

}
```

```
{
        "_id" : ObjectId("5c9677f3cc7efa53af5dae27"),
        "user_id" : 3173,
        "profile_picture" : "profile_image.jpg",
        "about_me" : "Lorem ipsum dolor sit amet"

}
```

Database Design

Establishing Relationships in Data: One to Many

```
{
    "_id" : ObjectId("5c943413cc7efa53af5dae24"),
    "user_id" : 3173,
    "name" : "helen",
    "age" : 32
}
```

```
{
    "_id" : ObjectId("5c943545cc7efa53af5dae25"),
    "post_id" : 5186,
    "user_id" : 3173,
    "body" : "Lorem ipsum dolor sit amet",
    "topic" : "health and wellness",
    "likes" : 57,
    "dislikes" : 31
}
```

```
{
    "_id" : ObjectId("5c967969cc7efa53af5dae28"),
    "post_id" : 5238,
    "user_id" : 3173,
    "body" : "consectetur adipiscing elit",
    "topic" : "sports",
    "likes" : 15,
    "dislikes" : 22
}
```

Database Design

Establishing Relationships in Data: Many to Many

```
{
        "_id" : ObjectId("5c967b56cc7efa53af5dae2a"),
        "name" : "lydia",
        "user_id" : 4106,
        "friend_ids" : [
                6439,
                8172,
                527,
                8273,
                5892
        ]
}
```

```
{
        "_id" : ObjectId("5c967ae4cc7efa53af5dae29"),
        "name" : "shane",
        "user_id" : 8723,
        "friend_ids" : [
                352,
                4106,
                7325,
                907,
                24
        ]
}
```

Embedded Documents:

- One to One
- **One to Many**
- Many to Many

Database Design

Establishing Relationships in Data: One to Many

```
{
    "_id" : ObjectId("5c943413cc7efa53af5dae24"),
    "user_id" : 3173,
    "name" : "helen",
    "age" : 32
}
```

```
{
    "_id" : ObjectId("5c943545cc7efa53af5dae25"),
    "post_id" : 5186,
    "user_id" : 3173,
    "body" : "Lorem ipsum dolor sit amet",
    "topic" : "health and wellness",
    "likes" : 57,
    "dislikes" : 31
}
```

```
{
    "_id" : ObjectId("5c967969cc7efa53af5dae28"),
    "post_id" : 5238,
    "user_id" : 3173,
    "body" : "consectetur adipiscing elit",
    "topic" : "sports",
    "likes" : 15,
    "dislikes" : 22
}
```

Database Design

**Embedded
Documents:
One to Many**

```
{
        "_id" : ObjectId("5c943654cc7efa53af5dae26"),
        "user_id" : 3173,
        "name" : "helen",
        "age" : 32,
        "posts" : [
                {
                        "body" : "Lorem ipsum dolor sit amet",
                        "topic" : "health and wellness",
                        "likes" : 57,
                        "dislikes" : 31
                },
                {
                        "body" : "consectetur adipiscing elit",
                        "topic" : "sports",
                        "likes" : 15,
                        "dislikes" : 22
                }
        ]
}
```

Database Design

Establishing Relationships in Data: Arrays

```
{
        "_id" : ObjectId("5c967b56cc7efa53af5dae2a"),
        "name" : "lydia",
        "user_id" : 4106,
        "friend_ids" : [
                6439,
                8172,
                527,
                8273,
                5892
        ]
}
```

```
{
        "_id" : ObjectId("5c967ae4cc7efa53af5dae29"),
        "name" : "shane",
        "user_id" : 8723,
        "friend_ids" : [
                352,
                4106,
                7325,
                907,
                24
        ]
}
```

Database Design

Embedded Documents: One to Many

```json
{
        "_id" : ObjectId("5c943654cc7efa53af5dae26"),
        "user_id" : 3173,
        "name" : "helen",
        "age" : 32,
        "posts" : [
                {
                        "body" : "Lorem ipsum dolor sit amet",
                        "topic" : "health and wellness",
                        "likes" : 57,
                        "dislikes" : 31
                },
                {
                        "body" : "consectetur adipiscing elit",
                        "topic" : "sports",
                        "likes" : 15,
                        "dislikes" : 22
                }
        ]
}
```