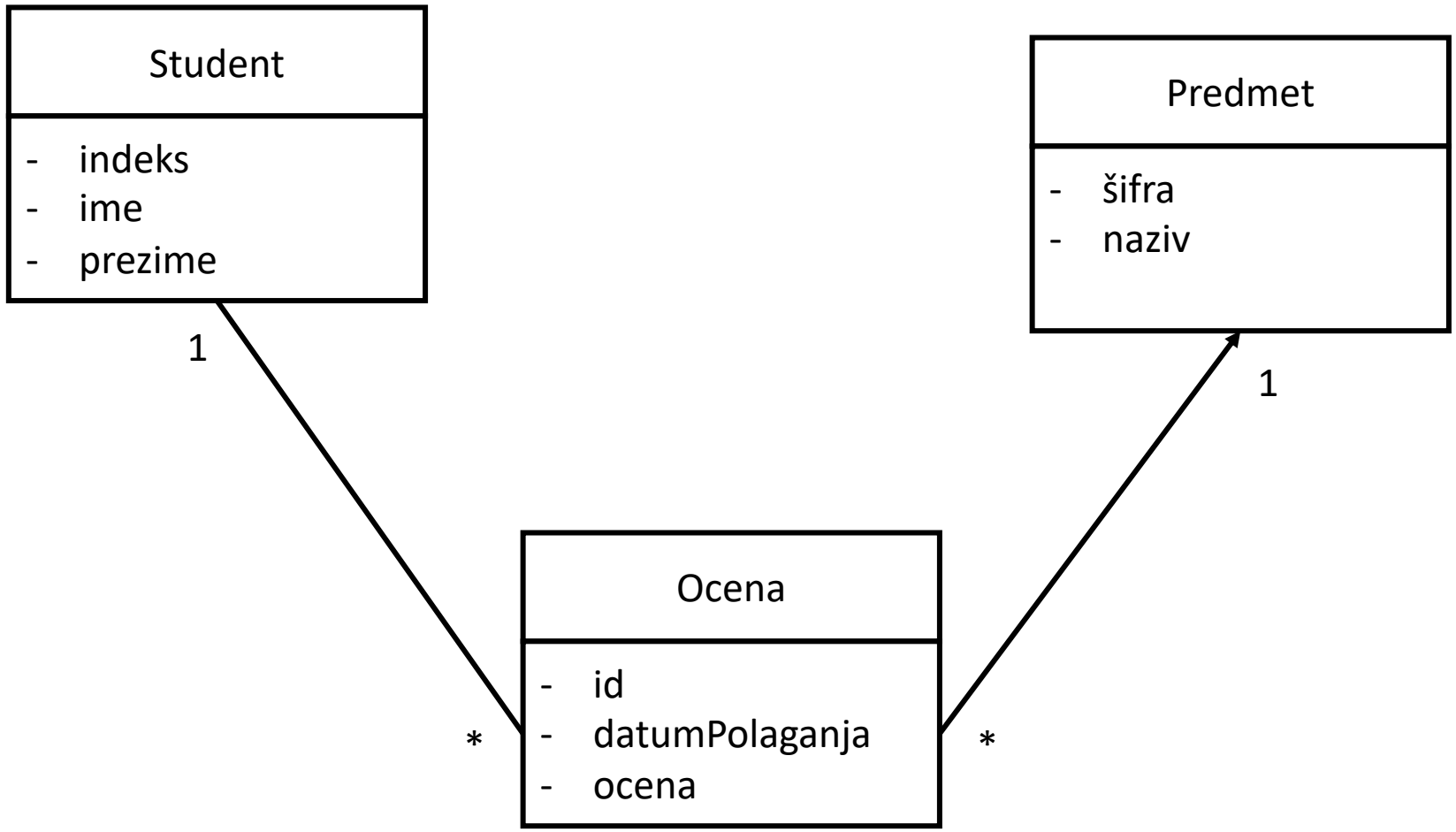
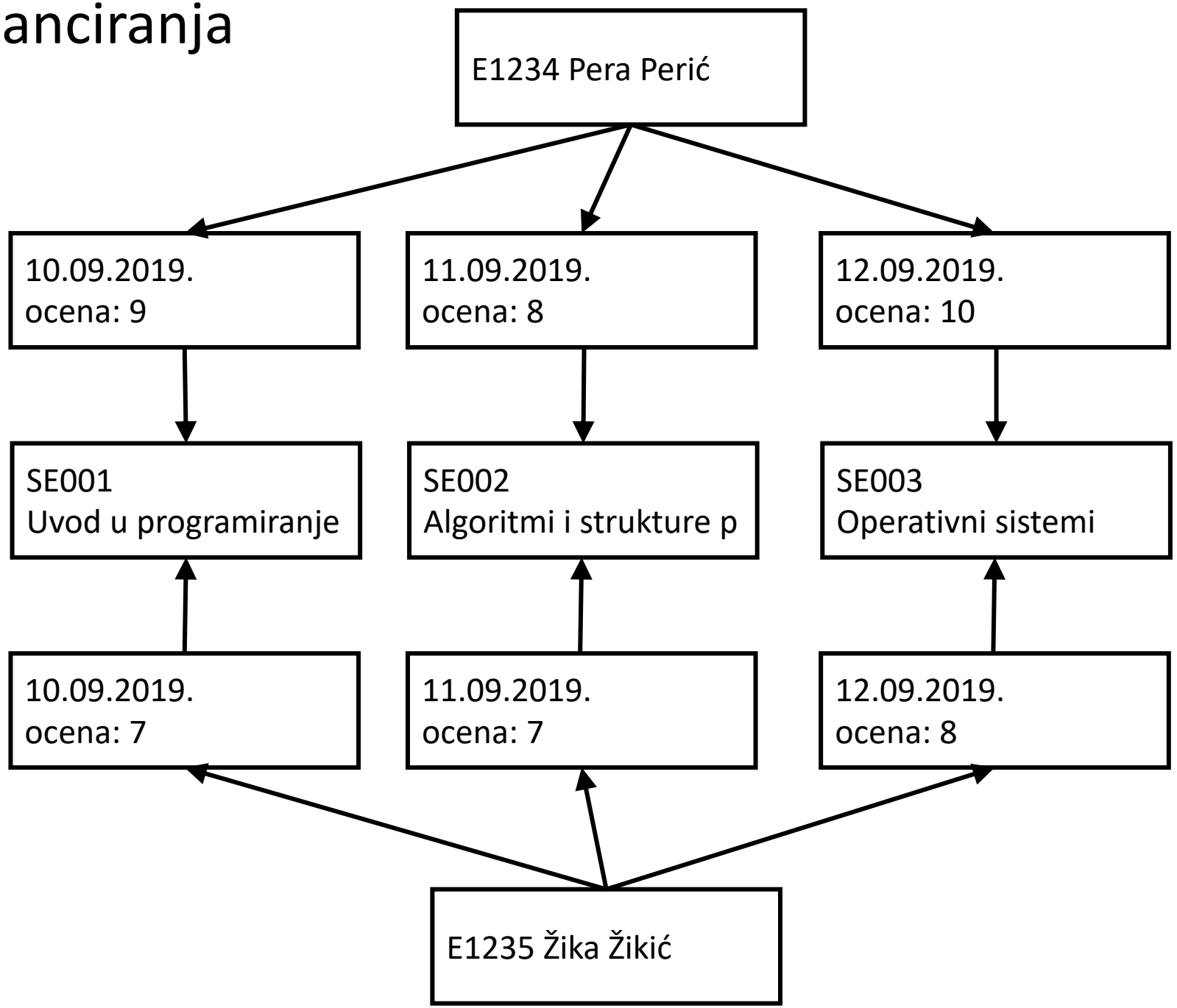
Dijagram klasa

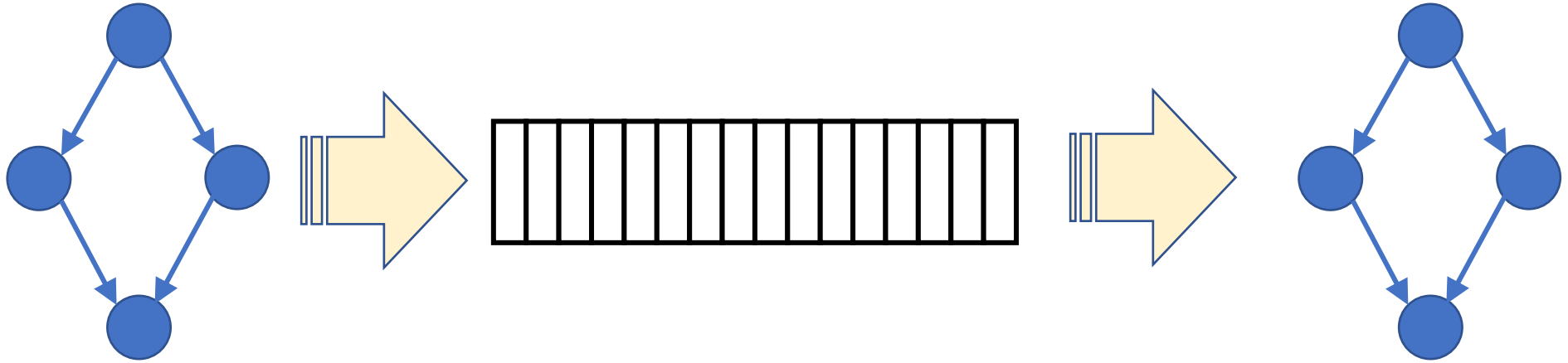


Primer instanciranja

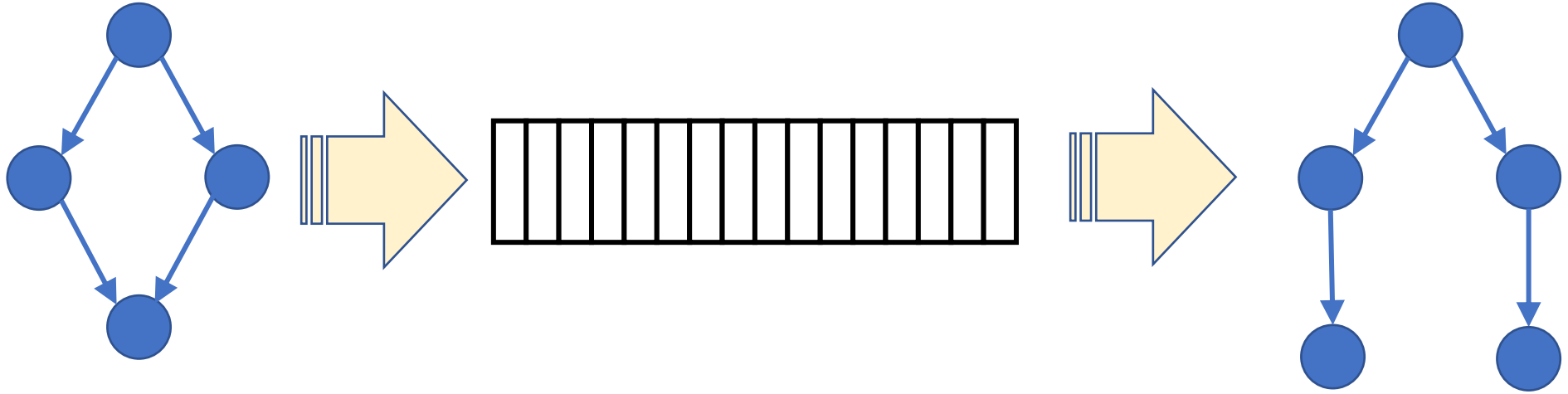


Serijalizacija+deserijalizacija grafa

a)



b)



GraphQL

- samo jedan endpoint: POST /graphql
- generički API za pretragu i izmene podataka
- zasnovan na definicijama tipova

```
type Client {
    id: ID!
    name: String!
    paymentTerms: Int!
    addressLine1: String!
    addressLine2: String
    city: String!
    postCode: String!
}

type Query {
    clients: [Client]!
    clientCount: Int!
}
```

```
type Invoice {
    id: ID!
    client: Client!
    status: String!
    issuedDate: String
    currency: String!
    gross: Float!
    net: Float!
    vat: Float!
}

extend type Query {
    invoices: [Invoice]
    invoice(id: Int!): Invoice
    invoicesByStatus(status: String): [Invoice]
    invoiceCount: Int!
}
```

GraphQL upiti

QUERY

```
{invoicesByStatus(status: "DRAFT"){id status client{id name addressLine1 city postCode}}}
```

Body Cookies (1) Headers (8) Test Results

Pretty Raw Preview Visualize JSON


```
{
    "data": {
        "invoicesByStatus": [
            {
                "id": "1",
                "status": "DRAFT",
                "client": {
                    "id": "1",
                    "name": "Bobs Marketing Agency",
                    "addressLine1": "23 Brighton Street",
                    "city": "Brighton",
                    "postCode": "BN2 7DP"
                }
            },
            {
                "id": "3",
                "status": "DRAFT",
                "client": {
                    "id": "2",
                    "name": "Jills Accountancy Company",
                    "addressLine1": "24 Eastbourne Rd",
                    "city": "Eastbourne",
                    "postCode": "BN23 5GP"
                }
            }
        ]
    }
}
```

GraphQL vs REST

	GraphQL	REST
arhitektura	client-driven	server-driven
izvor organizacije	šema i sistem tipova	endpoints
operacije	query, mutation, subscription	create, read, update, delete
dobavljanje podataka	specifični podaci jednim pozivom	podaci fiksne strukture kroz više poziva
veličina zajednice	raste	velika
performanse	dobra :D	veliki mrežni saobraćaj
brzina razvoja	brža	sporija
kriva učenja	strma	umerena
samo-dokumentovanje	da	onako (OpenAPI)
file upload	ne	da
web caching	teško	lako
stabilnost	automatska validacija i provera grešaka	bolje za složene upite
domen primene	mikroservisi, mobilne aplikacije	resource-driven aplikacije