----NETni o'rnatish va dasturlash muhitini sozlash

1. Undestanding C# and .NET

2. Setup development environment

3. .NET SDK vs .NET Runtime

4. .NET CLI

5. The first Console Application

8

1.1.3 Ma'lumot toifalari va o'zgaruvchilar

1. C# gramatikasi.

2. Variables

3. Naming convention

4. Primitive Data types

5. Dynamic vs object types

6. Getting and Setting default values

7. Input/Output

4

1.1.4 Toifalar o'rtasida Casting va Converting

1. Implicit and explicit casting

2. System.Convert method

3. ToString()

4. Parse and TryParse

4

PDP ACADEMY PDP ACADEMY PDP ACADEMY

PDP ACADEMY PDP ACADEMY PDP ACADEMY

1

1.1

1.1.5 Operatorlar

1. Binary

2. Unary

3. Assignment

4. Logical

5. Conditional Logical

6. Bitwise and binary shift

7. Miscellaneous(nameof, sizeof)

8

1.1.6 Shart va tanlash operatorlari

1. If

2. If else

3. nested if

4. Ternary operator

5.switch

8

1.1.7 Takrorlanish operatorlari

1. for

2. while

3. do while

4. foreach

5. continue, break

8

1.1.8 Funksiyalar bilan ishlash

1. Funksiya nima?

2. Funksiyaning kiruvchi parametrlari(ref and out)

3. Qiymat qaytaradigan va qaytarmaydigan

funksiyalar

4. Rekursiv funksiyalar

5. Debugging

8

1.1.9 Matnlar bilan ishlash

1. String classi metodlari

2. String formatting

3. String interpolation

4. Verbatim string

12

PDP ACADEMY PDP ACADEMY PDP ACADEMY

PDP ACADEMY PDP ACADEMY PDP ACADEMY

1

1.1

1.1.10 Massivlar bilan ishlash

1. One demensional

2. Multi demensional

3. Array class metodlari

12

1.1.11 Amaliyot va oraliq nazorat Amaliyot va oraliq nazorat 4

1.2 C# intermediate 80

1.2.1 OOPga kirish

1. OOP nima?

2. Class, field, method, constructor, destructor

3. Object instance hosil qilish, this keyword

4. Access modifiers

8

1.2.2 OOP Concepts, Encapsulation

1. OOP pillars

2. Encapsulation

3. getter and setter

8

1.2.3 Inheritence, base, static, sealed

keyoword

1. Inheritence

2. base keyword

3. sealed class and methods

4. static class, static constructors

8

1.2.4 Polymorphism, Aggregation

1. Polymorphism

2. function and operator overloading

3. Overriding

4. Aggregation

8

1.2.5 Abstraction, Interface

1. Abstraction, abstract class

2. Interface

3. nested classes

4. partial class

8

1.2.6 Enum, struct va generic toifalari

1. Enum

2. Generics

3. struct

4

PDP ACADEMY PDP ACADEMY PDP ACADEMY

PDP ACADEMY PDP ACADEMY PDP ACADEMY

1

1.2

1.2.7 Collections(1-qism)

1. Systems.Collections

2. Array vs ArrayList

3. List, LinkedList, SortedList

4. Stack, Queue

5. Dictionary vs HashTable

8

1.2.8 Collections(2-qism)

1. IEnumerable, ICollection, IList, IDictionary

2. Indexer

3. Iteration, yield operator

8

1.2.9 Tuple va Nullable types

1. Tuple

2. ValueTuple

3. Nullable types

4. Null-coalescing operator

4

1.2.10 Event va Delegate types

1. Delegate

2. Event

3. Anonymous methods

4. Lambda expression

12

1.2.11 Amaliyot va oraliq nazorat Amaliyot va oraliq nazorat 4

1.3 C# advanced 80

1.3.1 Exception handling

1. Exceptions

2. try, catch, final

3. throw

4

1.3.2 Working with text

1. StringBuilder

2. Regex

3. String comparison

8

1.3.3 Vaqt bilan ishlash

1. DateTime class

2. Date, DateOnly, TimeOnly

3. TimeStamp

8

PDP ACADEMY PDP ACADEMY PDP ACADEMY

PDP ACADEMY PDP ACADEMY PDP ACADEMY

1

1.3

1.3.4 File I/O

1. File, FileInfo

2. StreamWriter, StreamReader

3. MemoryStream, FileStream

4. Directory, DirectoryInfo

5. DriveInfo

6. Path

8

1.3.5 Object serialization, JSON

1. JsonSerializer

2. XmlSerializer

3. BinaryFormatter

8

1.3.6 Workin with network(API)

1. System.Net, WebClient

2. API connections, URI

2. HttpClient, HttpMethod

8

1.3.7 MultiThreading, Parallel and

Asynchronous programming

1. MultiThreading

2. Asynchronous Programming

3. Paraller Programming

12

1.3.8 TelegramBotApi

1. Polling vs Webhook

2. SendMessage, SendSticker, SendPhoto

3. ReplyKeyboardMarkup and

InlineKeyboardMarkup

20

1.3.9 Amaliyot va oraliq nazorat Amaliyot va oraliq nazorat 4

2 DATA BASE 80

2.1 PostgreSQL 80

2.1.1

PostgreSQL MOBT

1. Database

2. Database Management Systems (DBMS)

(Postgresql, Oracle)

3. Database types(relational, nosql)

4. PostgreSQL and PgAdmin install

5. Tablespace, Schema, Table, User

4

PDP ACADEMY PDP ACADEMY PDP ACADEMY

PDP ACADEMY PDP ACADEMY PDP ACADEMY

2

2.1

2.1.2

Data types and Constraints

1. Connect To a PostgreSQL Database

2. Server

3. Data types

4. Constraints => NOT NULL, UNIQUE, PK, FK,

CHECK

8

2.1.3 SQL so’rovlar tili, DDL, DML

buyruqlari

1. DDL(CREATE, ALTER, TRUNCATE, DROP)

2. DML(INSERT, SELECT, UPDATE, DELETE) 8

2.1.4

DSL, TCL, Build Structure 1. DCL (Grant, Revoke)

2. TCL(Commit, Rollback, Savepoint)

3. Build Structure(ONE to ONE, ONE to MANY,

MANY to ONE, MANY to MANY)

8

2.1.5

Opertorlar, PostgreSQL fundamentals 1. Operators(Arithmetic, Comparison, Logic)

2. PostgreSQL fundamentals (select distinct, order

by, where, limit, fetch, in, between, like, is null,

table and column aliases)

8

2.1.6

Joining Multiple Tables

1. Joining Multiple Tables (join, cross join, natural

join)

2. AGGREGATE FUNCTIONS (count, avg, max,

min, sum)

3. Grouping Data (group by, having)

8

2.1.7

Extra fundamentals for table 1. Subquery, ANY, ALL, EXISTS, Set

2. Operations (UNION, Intersect, Except)

3. CONDITIONAL EXPRESSIONS &

OPERATORS (case, coalesce, nullif, cast)

4

2.1.8 Viewlar bilan ishlash 1. Views(Simple, Complex, Inline, Materialized)

2. Managing PostgreSQL Views(CREATE, DROP,

UPDATABLE)

4

PDP ACADEMY PDP ACADEMY PDP ACADEMY

PDP ACADEMY PDP ACADEMY PDP ACADEMY

2

2.1

2.1.9 Funksiyalar bilan ishlash 1. Functions(aggregate, math, String, Date)

2. SQL functions

3. PL/PgSql functions

8

2.1.10

Triggers, Lock and Privileges 1. Triggers

2. Crypto

3. Lock

4. Privileges

8

2.1.11

Postgresql Advanced Features

1. JSON, JSONB

2. Indexing

3. Postgres Cron

4. CREATING TABLE PARTITIONS

5. Vertical table

8

2.1.12 Kurs ishi va Oraliq nazorat Kurs ishi va Oraliq nazorat 4

3 .NET Backend 240

3.1 ASP.NET Core Web API Introduction 80

3.1.1 Introduction to ASP.NET Core Web

API

1. Introduction to REST

2. What is ASP.NET Web API?

3. First application

4. Startup va Program filelari

8

3.1.2

Controller, Action, Routing

1. Controller nima?

2. Action bilan ishlash

3. IActionResult, ActionResult

4. Routing nima?

5. Fallback routes

8

PDP ACADEMY PDP ACADEMY PDP ACADEMY

PDP ACADEMY PDP ACADEMY PDP ACADEMY

3

3.1

3.1.3 Middleware, Request pipeline, DI

Container

1. Middleware nima?

2. Request pipeline

3. Dependency Injection

4. DI Container

5. Registering services

8

3.1.4 Global error handling and Logging

1. ILogger interfeysi

2. Serilog configuration

3. Error handling

8

3.1.5 Model binding and validation

1. Model binding

2. Model Validation

3. Handling validation errors

8

3.1.6 CRUD operations

1. Get metodi bilan ishlash

2. Post metodi bilan ishlash

3. Put va Patch metodlari

4. Delete metodi

12

3.1.7 RESTful API with Repository Pattern

1. What is RESTful api?

2. Repository Pattern haqida

3. Implement RESTful api with RP

12

3.1.8 Filters, Sorting, Searching and

Pagination

1. Filtering

2. Sorting

3. Searching

4. Pagination

8

3.1.9 Object mapping

1. DTO nima?

2. AutoMapper

3. Mapster

4

3.1.10 Amaliyot va Oraliq nazorat 4

3.2 ASP.NET Core Web API, WebMVC additional 80

PDP ACADEMY PDP ACADEMY PDP ACADEMY

PDP ACADEMY PDP ACADEMY PDP ACADEMY

3

3.2

3.2.1 OpenApi and Swagger. API Versioning

1. Configure Swagger

2. URL versioning

3. Http Header versioning

4. Deprecating Versions

8

3.2.2 Caching, Rate limiting

1. Cache types

2. Cache-store, Expiration model, Validation model

3. Etag

4. Rate limiting

8

3.2.3 CORS

1. What is CORS?

2. Enabling CORS

3. Setting CORS origins and HTTP methods

4. Creating a custom CORS policy

8

3.2.4 ASP.NET Core MVC

1. MVC haqida

2. Views, Strongly typed views

3. Layout, ViewStart, ViewImport

4. Tag helpers

5. Statik fayllar bilan ishlash

6. Razor view

12

3.2.5 Authentication with JWT

1. Authentication

2. JWT(JSON Web token)

3. Authentication with JWT

12

3.2.6 ASP.NET Identity

1. Create IdentityDbContext

2. Register, Login, Logout

3. Identity services

8

3.2.7 Cookies 1. What is Cookies?

2. Setting and getting cookies 8

PDP ACADEMY PDP ACADEMY PDP ACADEMY

PDP ACADEMY PDP ACADEMY PDP ACADEMY

3

3.2

3.2.8 Authorization server with

IdentityServer4

1. IdentityServer options

2. Identity resource

3. API scope, API resource, API client

4. Authorization

12

3.2.9 Amaliyot va Oraliq nazorat Amaliyot va Oraliq nazorat 4

3.3 ASP.NET Advanced 80

3.3.1 Coding Standards 1. Clean Code

2. Refactoring 8

3.3.2 Clean Design

1. SOLID

2. DRY

3. GoF

12

3.3.3 Software Testing

1. Unit Testing

2. AAA pattern

3. FIRST pattern

4. TDD

5. Test Controllers

6. Mock tests

12

3.3.4 Deploy to IIS Server

1. IIS Server overview

2. IIS Modules

3. Publish to IIS

8

3.3.5 Azure 1. Azure services

2. Publish and Deploy the app 8

3.3.6 Dockerizing ASP.NET Core app

1. Create dockerfile

2. Docker container

3. Docker image

4. Docker hub

12

3.3.7 Devops 1. What is CI/CD

2. Github actions 8

PDP ACADEMY PDP ACADEMY PDP ACADEMY

PDP ACADEMY PDP ACADEMY PDP ACADEMY

3

3.3

3.3.8 Agile, Jira, Trello

1. Agile

2. Jira

3. Trello

8

3.3.9 Amaliyot va Oraliq nazorat Amaliyot va Oraliq nazorat 4

4 Data Structures and Algorithms 80

4.1 Algorithms 32

4.1.1

Number Algorithms 1. Five Websites for DSA,

2. LeetCode Platform, LeetCode Problems

3. Power of Two

4. Valid Perfect Square

8

4.1.2 String Algorithms 1. Valid Anagram

2. Valid Parentheses 8

4.1.3 Array and Matrix Algorithms 1. Single Number

2. Move Zeros 8

4.1.4

Dynamic Programming

1. Fibonacci Number

2. Iterative Method

3. Recursive Method

4. Recursive-Make it work

5. DP-Make it efficient

6. Memoization-Top Down

7. Tabulation-Top Down

8. Coin Change 2

8

4.2 Data Structures 48

4.2.1 Asymptotic Analysis Asymptotic Analysis 4

4.2.2 ArrayList and LinkedList ArrayList 8

4.2.3 Stack and Queue LinkedList 4

4.2.4 HashTable HashTable 4

PDP ACADEMY PDP ACADEMY PDP ACADEMY

PDP ACADEMY PDP ACADEMY PDP ACADEMY

4

4.2

4.2.5 Tree Tree 8

4.2.6 Trie Trie 4

4.2.7 Graph (Directed) Graph (Directed) 8

4.2.8 Graph (Undirected) Graph (Undirected) 8

5 Amaliyot 80

Tuzuvchi: X. Abduxoshimo

Introduction to ASP.NET Core Web API

1.Introduction to ASP.NET Core

2.ASP.NET Core features.First Application.Startup and Program.

3.ASP.NET Core hosting

4.ASP.NET Core launchSettings.json file

2 ASP.NET Core project structure

1.Configurations

2.Dependency injection and DI container

3.Middleware and Request pipeline

3 Client-Server Relationship. Server side request Handling

1.HTTP Request. Client-Server relationship

2.Controllers and Endpoints

3.Routing 4 REST API structure.Request-Response types

1.API Architectural Styles.Introduction to REST

2.ActionResult & IActionResult. Http status code

3.Model binding 5 Entity Framework Core in ASP.NET Core. Practice with REST API

1.Using Entity framework core in ASP.NET core

2.Http Get and Post 3.Http Put, Patch and Delete 6 Project architectures. Repository pattern 1.Clean architecture 2.Repository pattern and Implementation 7 Logging in ASP.NET CORE 1.ILogger 2.Serilog basics 3.Serilog advanced 8 Data validation in ASP.NET CORE 1.Model Validation 2.Custom validation attribute 3.Fluent Validation 9 Mapping, Global Exception handling. IoC container service lifetime 1. Data Transfer Objects (DTO) 2. AutoMapper 3.Registering services and Service lifetime 4.Global exception handling 10 Sample Project with ASP.NET CORE Web API 1.Build architecture of the project 2.Create services and configure DI container 3.CRUD operations with REST Api Modul 7. ASP.NET Core Web API 1 Caching in ASP.NET CORE 1.Cache Introduction 2.In-Memory Caching 3.Distributed Caching 2 Entity tag and Rate limiters. 1.Entity tag 2.Rate limiting 3 Introduction Json Web Token (JWT) 1.JWT Authentification Introduction 2.Create Access token 4 Validate JWT Token. Refresh tokens 1.Validate JWT Access Token and Authentificate User 2.Refresh Token 5 Role-Permission based access control(RBAC) with JWT 1.What is Role-Permission based Access Control (RBAC) 2.Using RBAC with JWT tokens 3.Role Configuration in JWT 6 Practice with JWT 1.User Configuration in JWT 2.Test RBAC Authorization with JWT 7 Introduction Filters. Filter types in ASP.NET CORE 1.Introduction Filters and Authorization Filters 2.Resource filters 3.Action filters 8 Filters and searching in ASP.NET Core 1.Exception filters 2.Result filters 3.Searching 9 Cross origin resources sharing(CORS) in ASP.NET Core 1.What is CORS? 3.Setting CORS origins, HTTP methods and Headers 4.Creating a custom CORS policy 10 MediatR and CQRS 1.Using MediatR and CQRS 2.Using MediatR Notification Modul 8. ASP.NET CORE Advanced 1 Introduction to ASP.NET Core Web API 1.Introduction MVC 2.Layout, ViewStart, ViewImport, Partial Views 3.Views, Weakly typed vs Strongly typed views 2 Working with files and Tag helpers 1. Tag helpers 2. UseStaticFiles 3. File Upload in MVC 3 CRUD operation and Validation 1. CRUD in MVC ? 2. Validation in MVC 4 Filtering and Pagination 3. Sorting in MVC 3. Data Filtering in MVC 4. Pagination in MVC 5 Working with Cookies 1. What is Cookies? 2. Cookies Settings 6 Real Time application in Blazor. SignalR 1.Introduction to Blazor App 1.SignalR Introduction 2.Build Real Time application in Blazor with SignalR 7 Unit Testing in ASP.NET . XUnit 1.Introduction software testing. What is XUnit? 2.XUnit practice. 8 Microsoft IdentityUser 1.Introduction Microsoft IdentityUser 2.UserIdentity customization. 9 Reflections 1. .Net compiler. What is metadata and assembly? 2.C#-Reflection. 10 Project Release. introduction CI/CD, Docker and Microservice architecture 1.Create custom nuget package 2.What is hosting and domain? Release Project 1.Cloud, CI/CD and Docker. 3.Complete Deploying Project. Using project as Platform 3.Introduction Microservice Architecture. Microservice vs Monolit Identity Server4 1. IdentityServer4 options 2. Identity resource User Identity library and Single Sign on (SSO) 1.Microsoft Identity User Library 2.Google SSO with User Identit