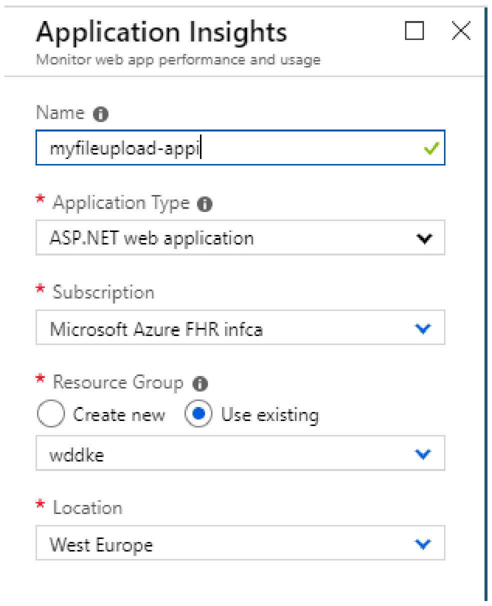
Monitor Web App und Azure Function Hands On

Für den im Azure WebApps + Storage + Functions Hands On implementierten UseCase wird ein Monitoring implementiert.

- Hinzufügen von Application Insights zur Middleware
- Hinzufügen von Application Insights für Azure Functions
    - Auswerten eines fehlerhaften Uploads
- Custom Logging
    - Hinzufügen von Custom Monitoring
        - In der Middleware mit dem TelemetryClient
    - In der UI
        - Tracken von Page Views mit einem custom monitoring service
- Anzeigen/Auswerten im Portal

Requirements:

- Application Insights Resourcen (3 Stück) in eigener RG erstellen und sprechend benennen.
    - Middleware
        - Application Insights für die ASP.NET web application erstellen
    - Function
        - Application Insights für die ASP.NET web application erstellen
    - UI
        - Application Insights für Node.js application erstellen (UI)



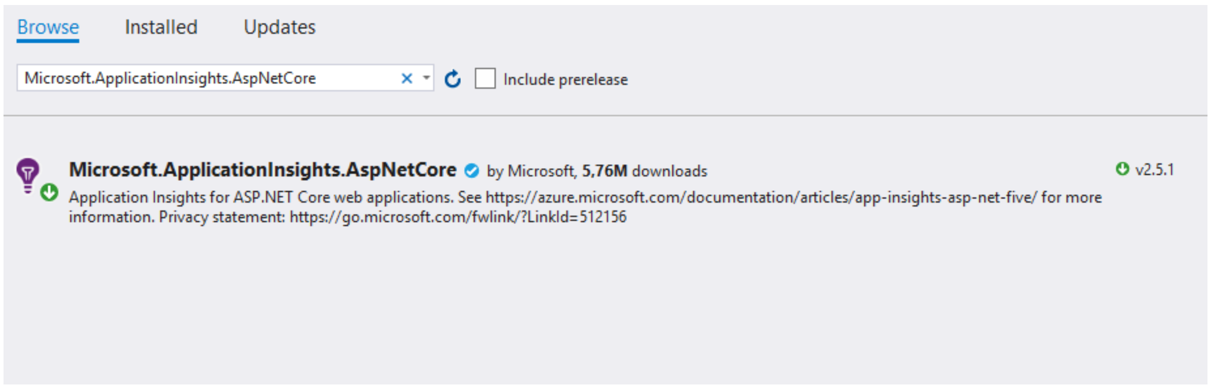
Application Insights
Monitor web app performance and usage

Name: myfileupload-appi
* Application Type: ASP.NET web application
* Subscription: Microsoft Azure FHR infca
* Resource Group: Create new [✓ Use existing]
wddke
* Location: West Europe

1 Implementieren von Application Insights in die Middleware

In Visual Studio in die File Upload App wechseln

Unter Manage NuGet Packages App Insights hinzufügen und auf aktuelle Version (2.5.1) prüfen



Microsoft.ApplicationInsights.AspNetCore by Microsoft, **5,76M** downloads v2.5.1
Application Insights for ASP.NET Core web applications. See https://azure.microsoft.com/documentation/articles/app-insights-asp-net-five/ for more information. Privacy statement: https://go.microsoft.com/fwlink/?LinkId=512156

Startup.cs

```
public void ConfigureServices(IServiceCollection services)
{
    services.AddMvc().SetCompatibilityVersion(CompatibilityVersion.Version_2_1);
    services.AddApplicationInsightsTelemetry(Configuration);

    // In production, the Angular files will be served from this directory
    services.AddSpaStaticFiles(configuration =>
    {
        configuration.RootPath = "ClientApp/dist";
    });
}
```

Program.cs

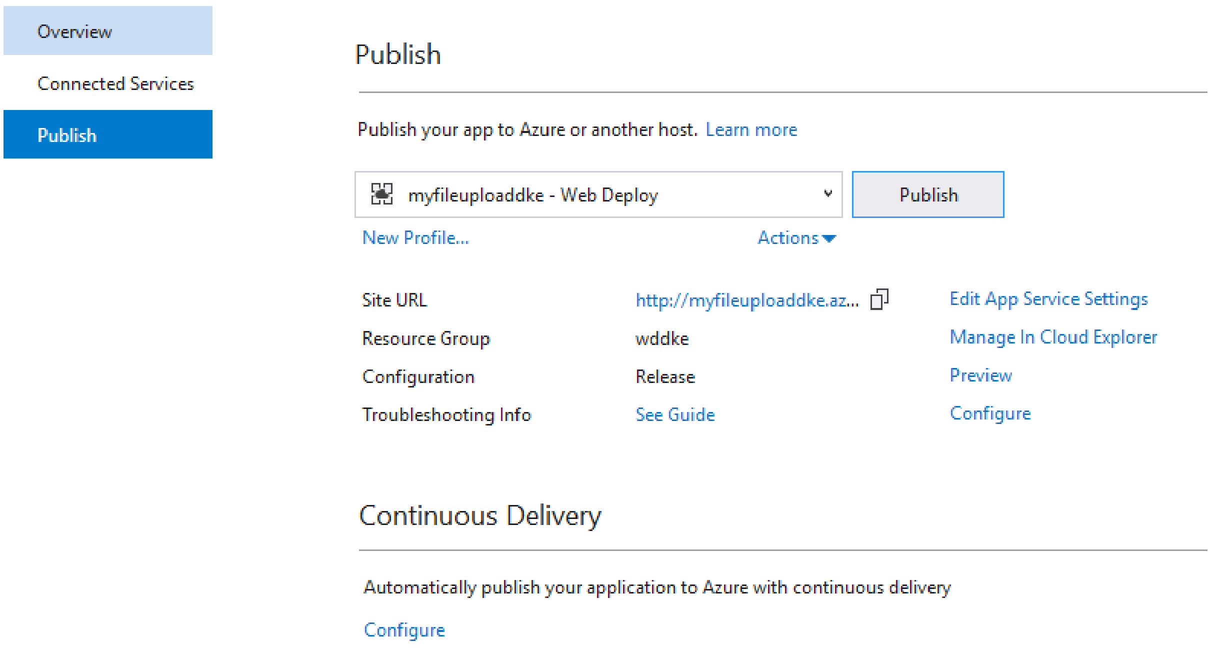
```
1 reference | 0 exceptions
public static IWebHostBuilder CreateWebHostBuilder(string[] args) =>
    WebHost.CreateDefaultBuilder(args)
        .UseStartup<Startup>().UseApplicationInsights();
```

Appsettings.json (Instrumentation Key der richtigen App Insights Resource eintragen)

```
"ApplicationInsights": {
    "InstrumentationKey": "XXX"

},
```

Ausführen

- Lokal ausführen und prüfen ob in der Cloud App Insights resource etwas ankommt (Kann ein wenig Zeit dauern)
- Wenn es funktioniert die App wieder Publishen
- Dann Online testen



Publish

Publish your app to Azure or another host. Learn more

myfileuploaddke - Web Deploy

Site URL	http://myfileuploaddke.az...	Edit App Service Settings
Resource Group	wddke	Manage In Cloud Explorer
Configuration	Release	Preview
Troubleshooting Info	See Guide	Configure

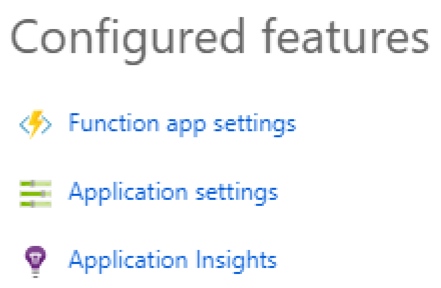
Continuous Delivery

Automatically publish your application to Azure with continuous delivery

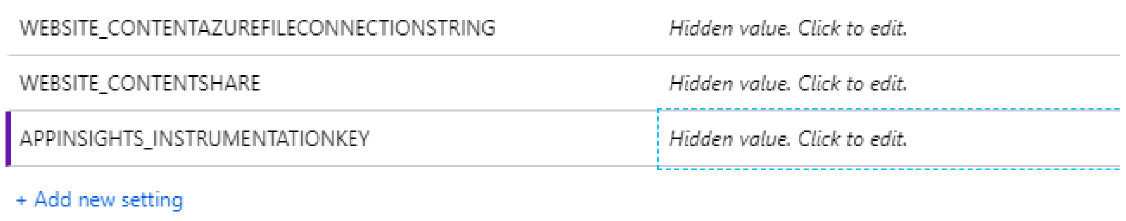
2 Implementieren von Application Insights für die Azure Function

Kopieren des Instrumentation Key der Azure Function Application Insights resource

In der Azure Function → Application Settings



Add new setting



WEBSITE_CONTENTAZUREFILECONNECTIONSTRING	*Hidden value. Click to edit.*
WEBSITE_CONTENTSHARE	*Hidden value. Click to edit.*
APPINSIGHTS_INSTRUMENTATIONKEY	*Hidden value. Click to edit.*

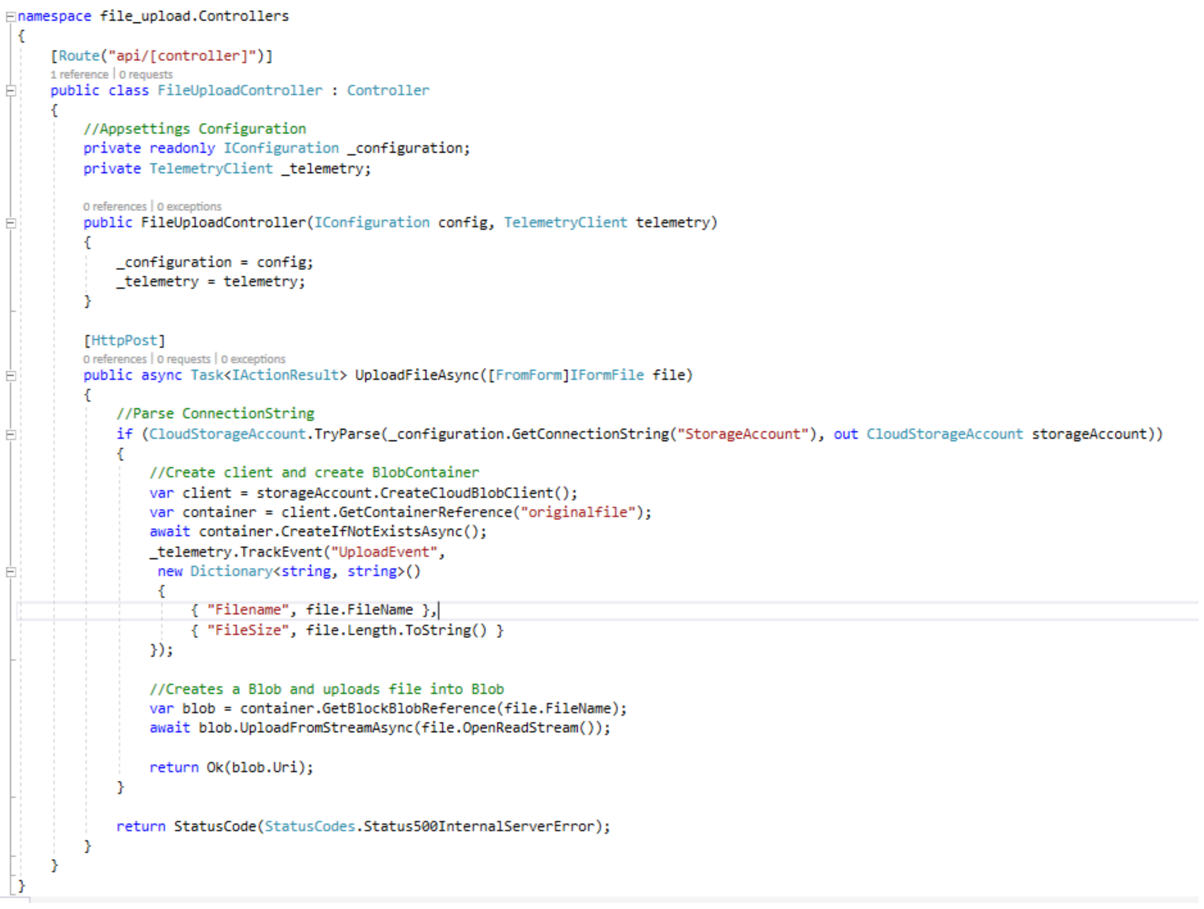
ÜBUNG

Zu der Azure Function Application Insights resource wechseln

- Bilder hochladen und prüfen ob App Insights etwas registriert
- Eine Datei (Kein Bild!) hochladen z.B .pdf
- Die Ursache für einen Fehler in der function mithilfe von App Insights suchen (Wo steht wieso der Dateiupload fehlgeschlagen ist)

3 Implementieren von Custom Events mit dem Telemetry Client

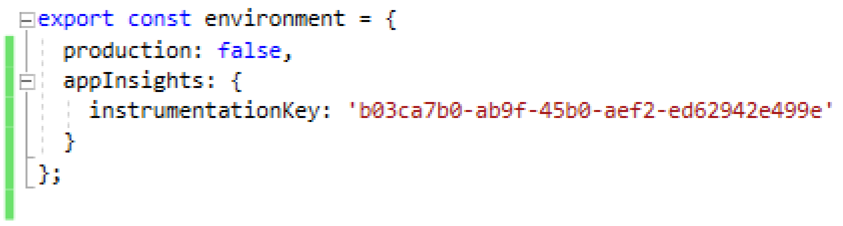
FileUploadController.cs (Den Filenamen und die Filegröße mit einem Upload Event tracken)



```
namespace file_upload.Controllers
{
    [Route("api/[controller]")]
    1 reference | 0 requests
    public class FileUploadController : Controller
    {
        //Appsettings Configuration
        private readonly IConfiguration _configuration;
        private TelemetryClient _telemetry;

        0 references | 0 exceptions
        public FileUploadController(IConfiguration config, TelemetryClient telemetry)
        {
            _configuration = config;
            _telemetry = telemetry;
        }

        [HttpPost]
        0 references | 0 requests | 0 exceptions
        public async Task<IActionResult> UploadFileAsync([FromForm]IFormFile file)
        {
            //Parse ConnectionString
            if (CloudStorageAccount.TryParse(_configuration.GetConnectionString("StorageAccount"), out CloudStorageAccount storageAccount))
            {
                //Create client and create BlobContainer
                var client = storageAccount.CreateCloudBlobClient();
                var container = client.GetContainerReference("originalfile");
                await container.CreateIfNotExistsAsync();
                _telemetry.TrackEvent("UploadEvent",
                 new Dictionary<string, string>()
                 {
                     { "Filename", file.FileName },
                     { "FileSize", file.Length.ToString() }
                });

                //Creates a Blob and uploads file into Blob
                var blob = container.GetBlockBlobReference(file.FileName);
                await blob.UploadFromStreamAsync(file.OpenReadStream());

                return Ok(blob.Uri);
            }

            return StatusCode(StatusCodes.Status500InternalServerError);
        }
    }
}
```

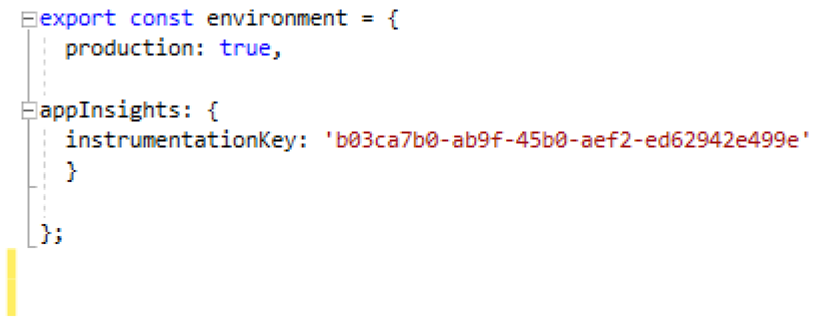
4 Implementieren von Application Insights für die UI (Custom Logging)

Environment.ts



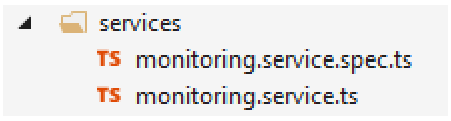
```
export const environment = {
  production: false,
  appInsights: {
    instrumentationKey: 'b03ca7b0-ab9f-45b0-aef2-ed62942e499e'
  }
};
```

Environment.prod.ts



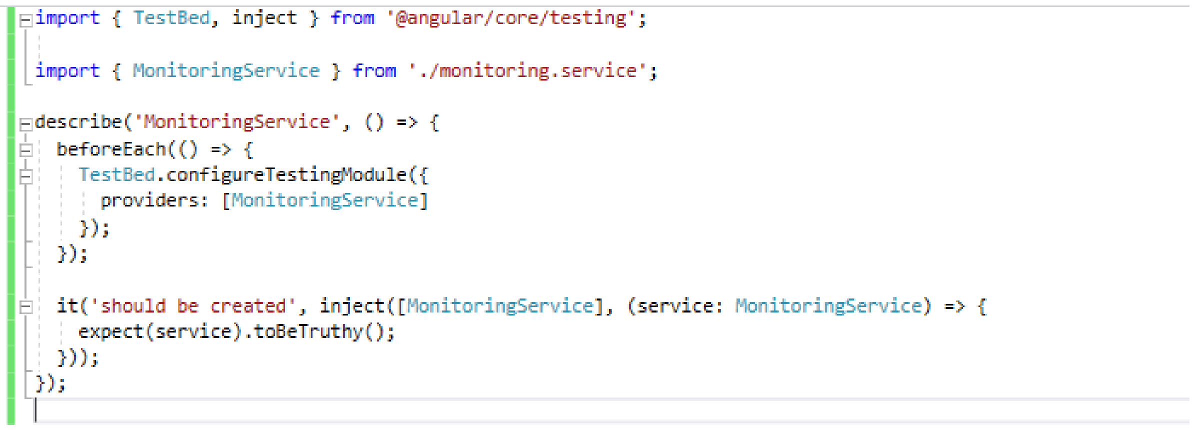
```
export const environment = {
  production: true,

appInsights: {
  instrumentationKey: 'b03ca7b0-ab9f-45b0-aef2-ed62942e499e'
  }

};
```

Under Ordner app → neuen Ordner services erstellen und monitoring service files anlegen



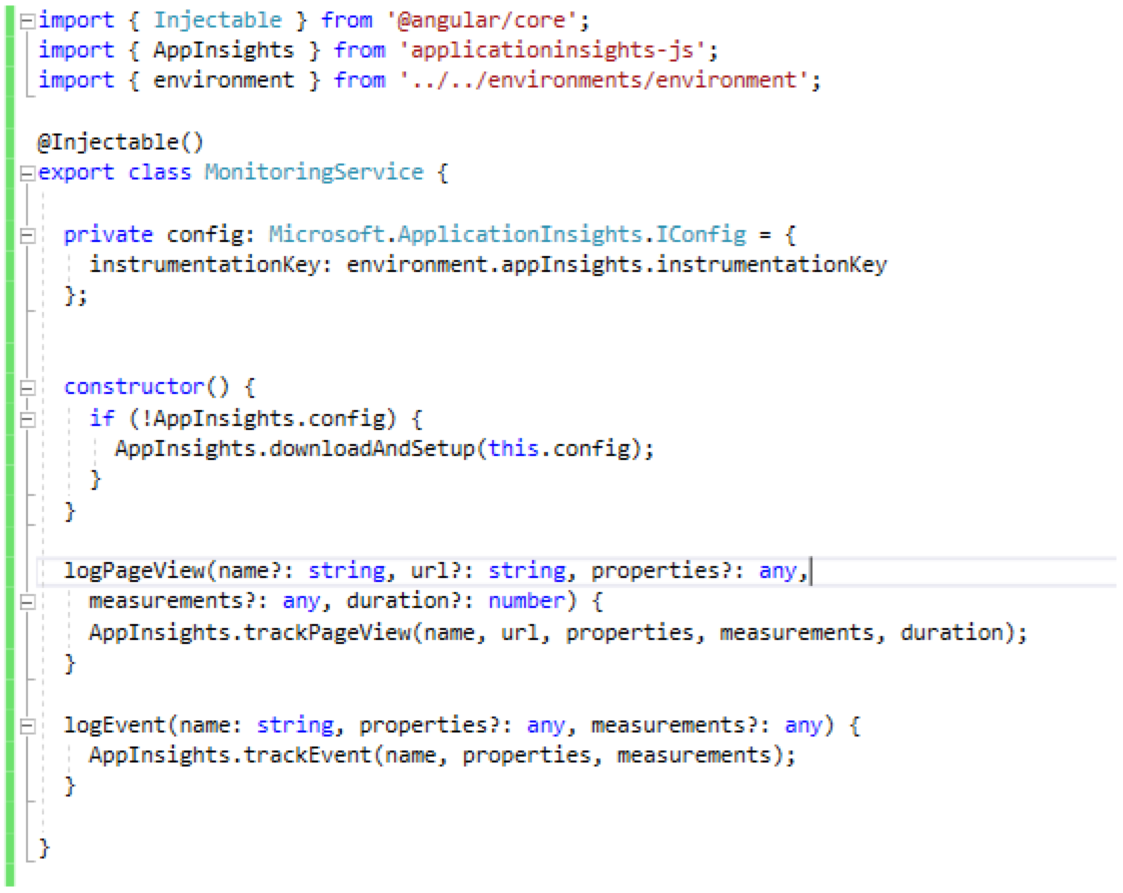
```
◢ services
    TS monitoring.service.spec.ts
    TS monitoring.service.ts
```

Monitoring.service.spec.ts

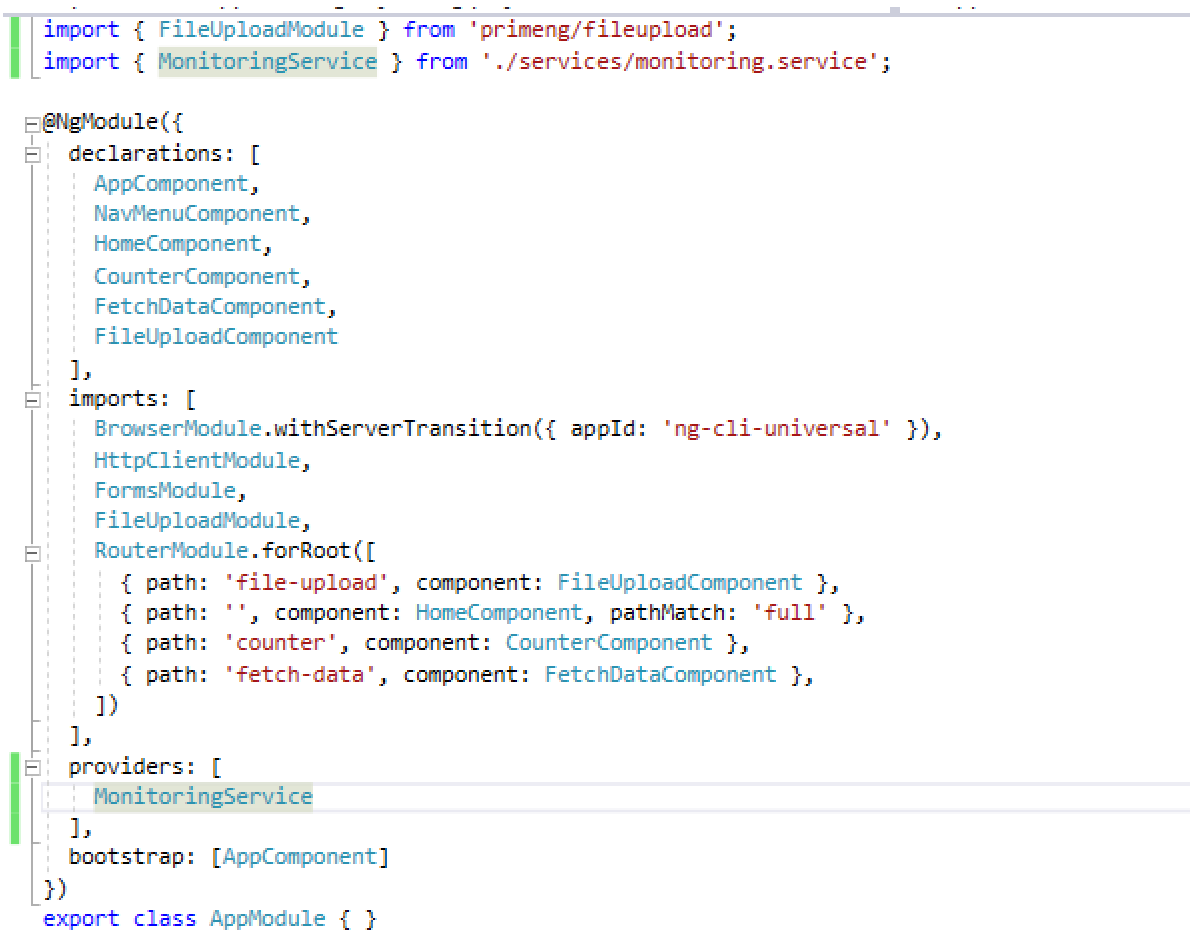


```
import { TestBed, inject } from '@angular/core/testing';

import { MonitoringService } from './monitoring.service';

describe('MonitoringService', () => {
  beforeEach(() => {
    TestBed.configureTestingModule({
      providers: [MonitoringService]
    });
  });

  it('should be created', inject([MonitoringService], (service: MonitoringService) => {
    expect(service).toBeTruthy();
  }));
});
```

monitoring.service.ts

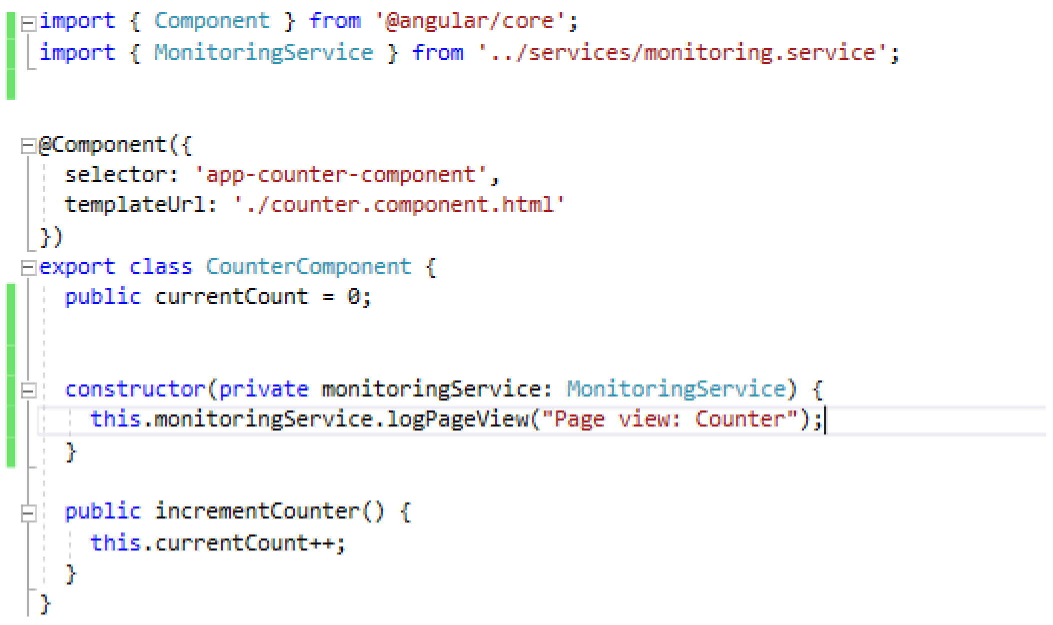

```
import { Injectable } from '@angular/core';
import { AppInsights } from 'applicationinsights-js';
import { environment } from '../../environments/environment';

@Injectable()
export class MonitoringService {

  private config: Microsoft.ApplicationInsights.IConfig = {
    instrumentationKey: environment.appInsights.instrumentationKey
  };


  constructor() {
    if (!AppInsights.config) {
      AppInsights.downloadAndSetup(this.config);
    }
  }

  logPageView(name?: string, url?: string, properties?: any,
    measurements?: any, duration?: number) {
    AppInsights.trackPageView(name, url, properties, measurements, duration);
  }

  logEvent(name: string, properties?: any, measurements?: any) {
    AppInsights.trackEvent(name, properties, measurements);
  }

}
```

App.module.ts



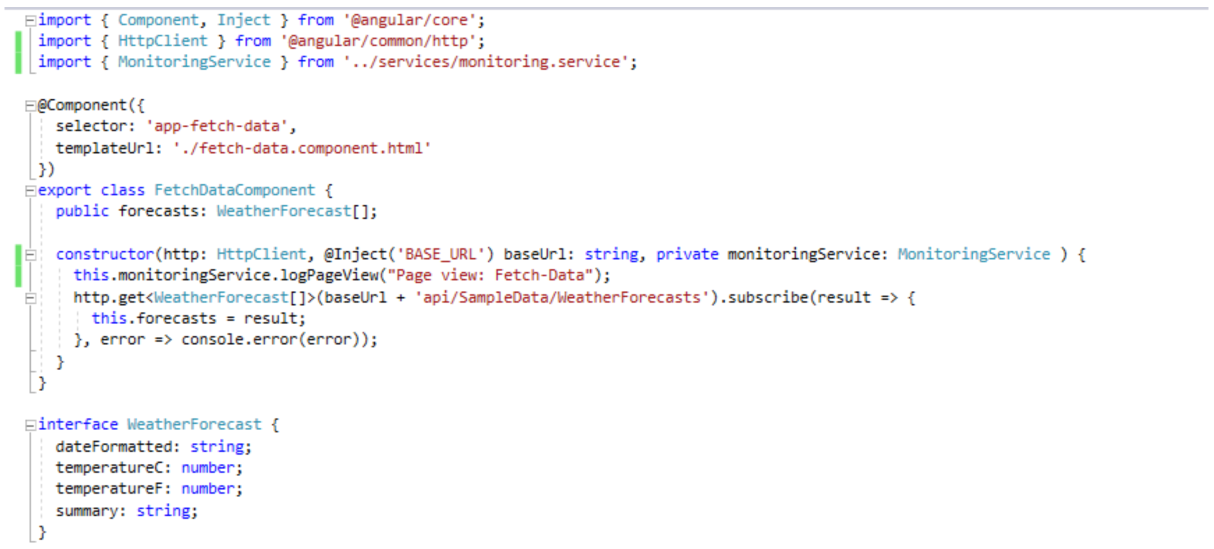
```
import { FileUploadModule } from 'primeng/fileupload';
import { MonitoringService } from './services/monitoring.service';

@NgModule({
  declarations: [
    AppComponent,
    NavMenuComponent,
    HomeComponent,
    CounterComponent,
    FetchDataComponent,
    FileUploadComponent
  ],
  imports: [
    BrowserModule.withServerTransition({ appId: 'ng-cli-universal' }),
    HttpClientModule,
    FormsModule,
    FileUploadModule,
    RouterModule.forRoot([
      { path: 'file-upload', component: FileUploadComponent },
      { path: '', component: HomeComponent, pathMatch: 'full' },
      { path: 'counter', component: CounterComponent },
      { path: 'fetch-data', component: FetchDataComponent },
    ])
  ],
  providers: [
    MonitoringService
  ],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

Counter.components.ts



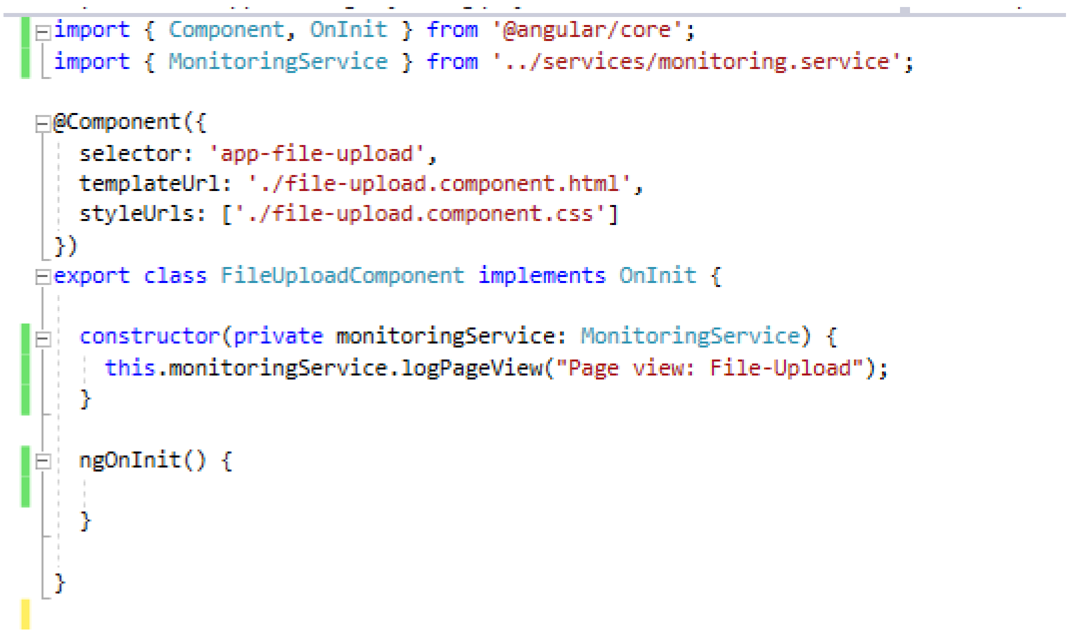
```
import { Component } from '@angular/core';
import { MonitoringService } from '../services/monitoring.service';


@Component({
  selector: 'app-counter-component',
  templateUrl: './counter.component.html'
})
export class CounterComponent {
  public currentCount = 0;


  constructor(private monitoringService: MonitoringService) {
    this.monitoringService.logPageView("Page view: Counter");
  }

  public incrementCounter() {
    this.currentCount++;
  }
}
```

Fetch-data.component.ts



```
import { Component, Inject } from '@angular/core';
import { HttpClient } from '@angular/common/http';
import { MonitoringService } from '../services/monitoring.service';

@Component({
  selector: 'app-fetch-data',
  templateUrl: './fetch-data.component.html'
})
export class FetchDataComponent {
  public forecasts: WeatherForecast[];

  constructor(http: HttpClient, @Inject('BASE_URL') baseUrl: string, private monitoringService: MonitoringService ) {
    this.monitoringService.logPageView("Page view: Fetch-Data");
    http.get<WeatherForecast[]>(baseUrl + 'api/SampleData/WeatherForecasts').subscribe(result => {
      this.forecasts = result;
    }, error => console.error(error));
  }
}

interface WeatherForecast {
  dateFormatted: string;
  temperatureC: number;
  temperatureF: number;
  summary: string;
}
```

File-upload.components.ts



```
import { Component, OnInit } from '@angular/core';
import { MonitoringService } from '../services/monitoring.service';

@Component({
  selector: 'app-file-upload',
  templateUrl: './file-upload.component.html',
  styleUrls: ['./file-upload.component.css']
})
export class FileUploadComponent implements OnInit {

  constructor(private monitoringService: MonitoringService) {
    this.monitoringService.logPageView("Page view: File-Upload");
  }

  ngOnInit() {

  }

}
```

Ausführen

- Lokal und prüfen in App Insights was angezeigt wird
- Publishen und nochmals prüfen