Task1

- The code:

```
#include <stdio.h>

float kalmanFilter(float sensor1[], float sensor2[], float accuracy1, float accuracy2)
  {
   float estimatedMeasurement = sensor1[0];
   float estimatedError = accuracy1;

   for (int i=1;i<10;i++)
   {
      float kalmanGain=estimatedError/(estimatedError+accuracy2);
      estimatedMeasurement=estimatedMeasurement+kalmanGain*(sensor2[i]-
estimatedMeasurement);
      estimatedError=(1-kalmanGain)*estimatedError;
   }

   return estimatedMeasurement;
}

int main()
   {
```

```
    float mpu6050[10]={0.0, 11.68, 18.95, 23.56, 25.72, 25.38, 22.65, 18.01, 10.14, -0.26};
    float bno55[10]={0.0, 9.49, 16.36, 21.2, 23.16, 22.8, 19.5, 14.85, 6.79, -2.69};
    float accuracy1 = 0.78; // Accuracy of mpu6050 sensor
    float accuracy2 = 0.92; // Accuracy of bno55 sensor

    float finalReading = kalmanFilter(mpu6050, bno55, accuracy1, accuracy2);
    printf("Final Reading: %.4f\n", finalReading);

    return 0;
}
```

- Screen of the output: