Exercise Sheet 2

1. Let X be a locally compact Hausdorff space. Compute the spectrum $\mathrm{Sp}_{C_0(X)}(f)$ for each $f \in C_0(X)$.

2. Let Γ be an abelian group and $A = \ell^1(\Gamma)$ with convolution product. Compute the Guelfand spectrum $\widehat{A}$ of A as a set.

3. Let $A = L^1([0,1])$ be the Volterra algebra (see Example 1.6 (iv) in the notes) and $f_0 \equiv 1$. Identify the subalgebra of A generated by f_0.