

HW7

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1 Training Methods

- follow transformers notebook
- epoch = 10

1.1 Apply LoRA

1.1.1 v1 Config

```
peft_config = LoraConfig(  
    lora_alpha=16,  
    lora_dropout=0.1,  
    r=64,  
    bias="none",  
    task_type="SEQ_CLS",  
    target_modules=["q_lin", "v_lin", "k_lin", "out_lin", "ffn.lin1",  
                   "ffn.lin2"]  
)
```

1.1.2 v1 Result

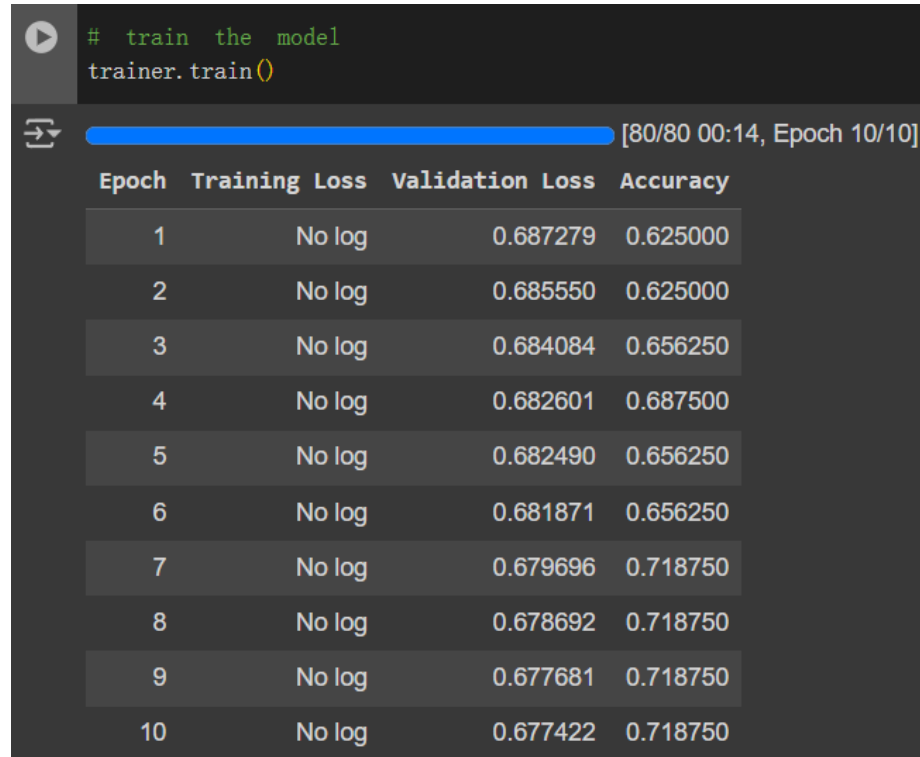


Figure 1: lora64 Result

1.1.3 v2 Config

set rank=32 on v1 config

```
peft_config = LoraConfig(  
    lora_alpha=16,  
    lora_dropout=0.1,  
    r=32,  
    bias="none",  
    task_type="SEQ_CLS",  
    target_modules=["q_lin", "v_lin", "k_lin", "out_lin", "ffn.lin1",  
                    "ffn.lin2"]  
)
```

1.1.4 v2 Result

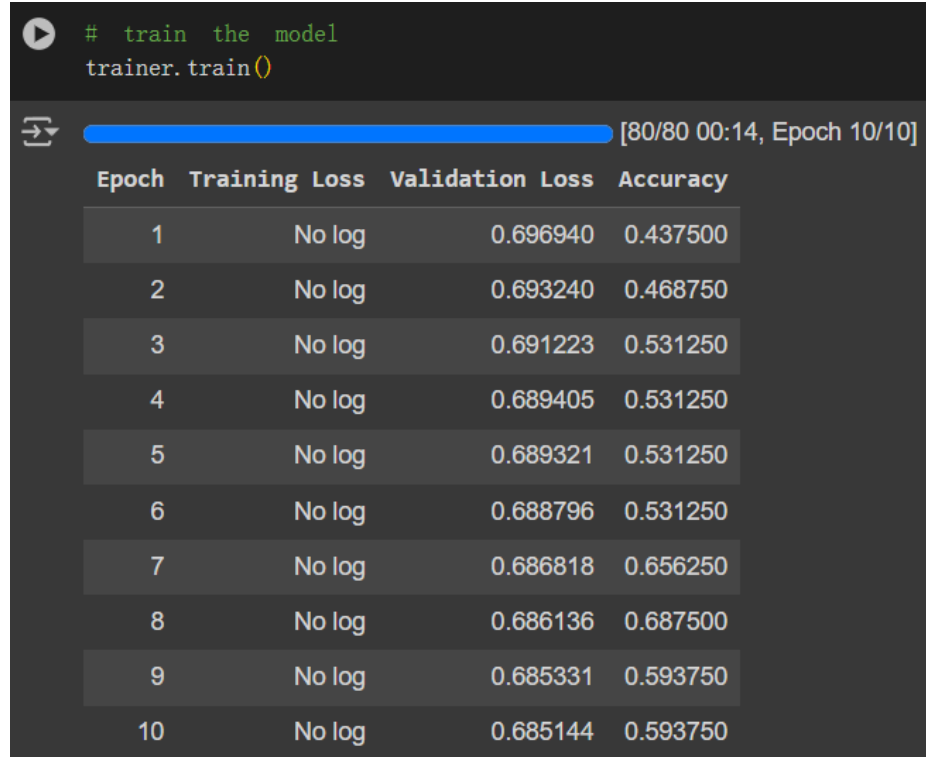


Figure 2: lora32 Result

1.1.5 v3 Config

set use_rslora=True on v1 config

```
peft_config = LoraConfig(  
    lora_alpha=16,  
    lora_dropout=0.1,  
    r=64,  
    bias="none",  
    task_type="SEQ_CLS",  
    target_modules=["q_lin", "v_lin", "k_lin", "out_lin", "ffn.lin1",  
                    "ffn.lin2"],  
    use_rslora = True  
)
```

1.1.6 v3 Result

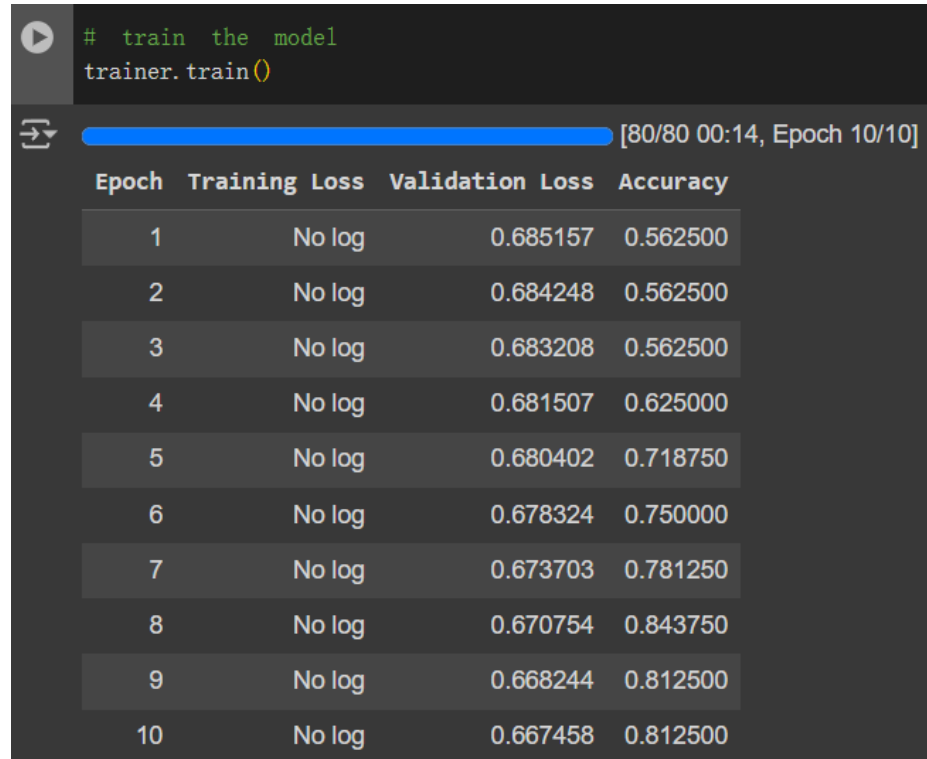


Figure 3: rslora Result

1.2 Apply IA3

1.2.1 Config

```
peft_config = IA3Config(  
    target_modules=["q_lin", "v_lin", "k_lin", "out_lin", "ffn.lin1",  
                   "ffn.lin2"],  
    task_type="SEQ_CLS",  
    feedforward_modules=["ffn.lin1", "ffn.lin2"]  
)
```

1.2.2 Result

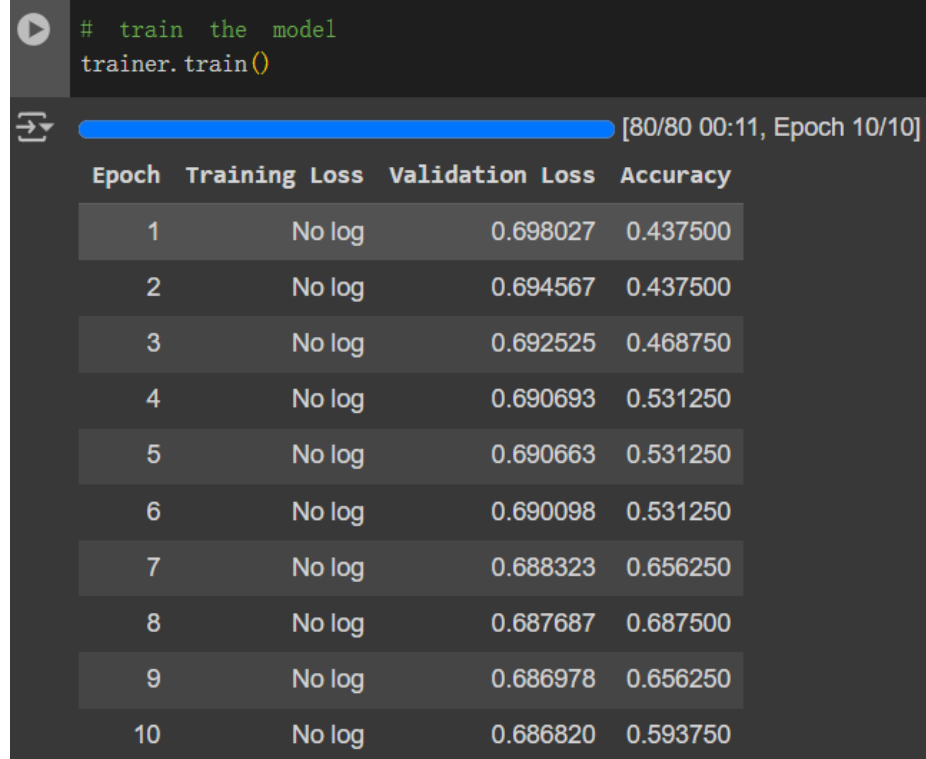


Figure 4: IA3 Result

1.3 Training results for different configurations

Config	Training Loss	Train Runtime	Samples/sec	Steps/sec
lora64	0.6803	14.4446	88.615	5.538
lora32	0.6876	14.2093	90.082	5.63
use_rslora	0.6797	14.5809	87.786	5.487
IA3	0.6881	11.448	111.81	6.988

Table 1: Training results for different configurations