

ASSIGNMENT 2

Group Members: (Group no 3)

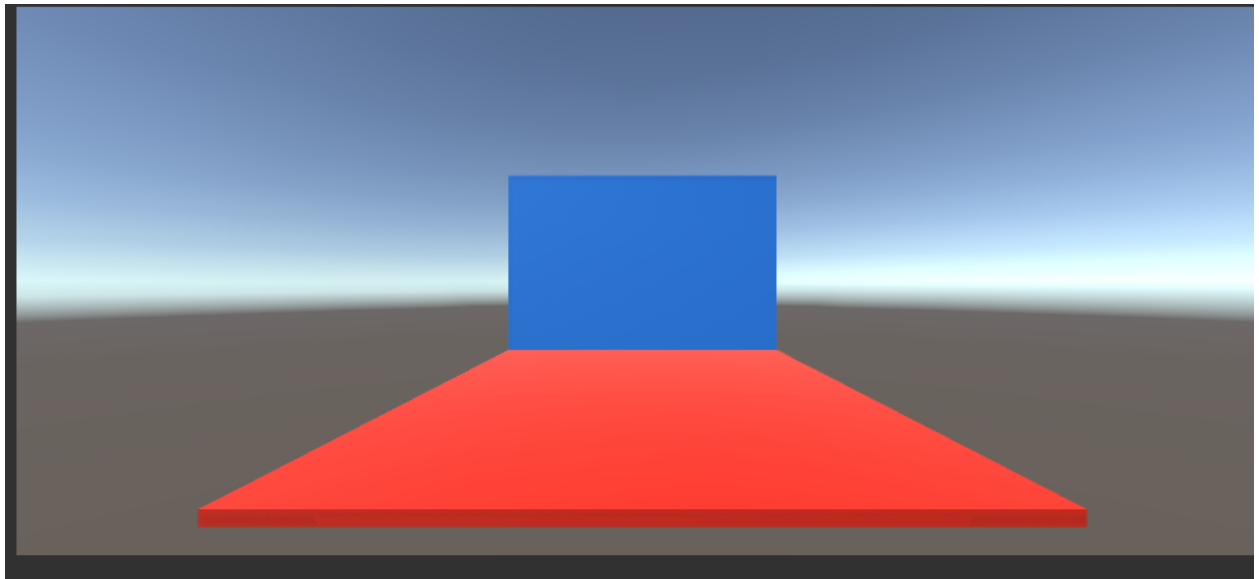
Pratik Kumar - B18187

Saksham Barara - B18190

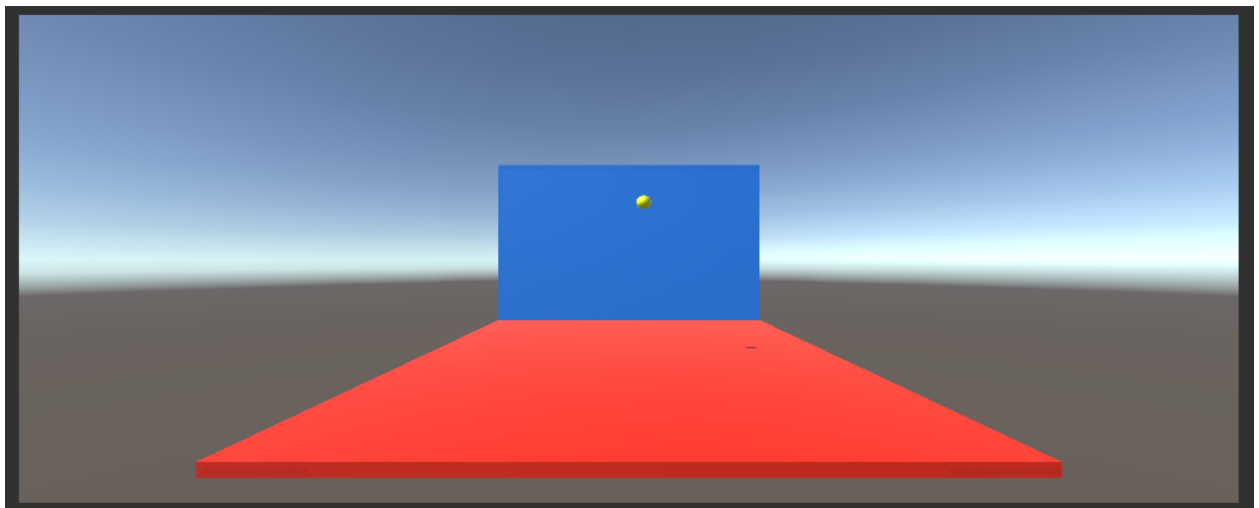
Rahul Anand - B18078

Abhinav Kumar - B18099

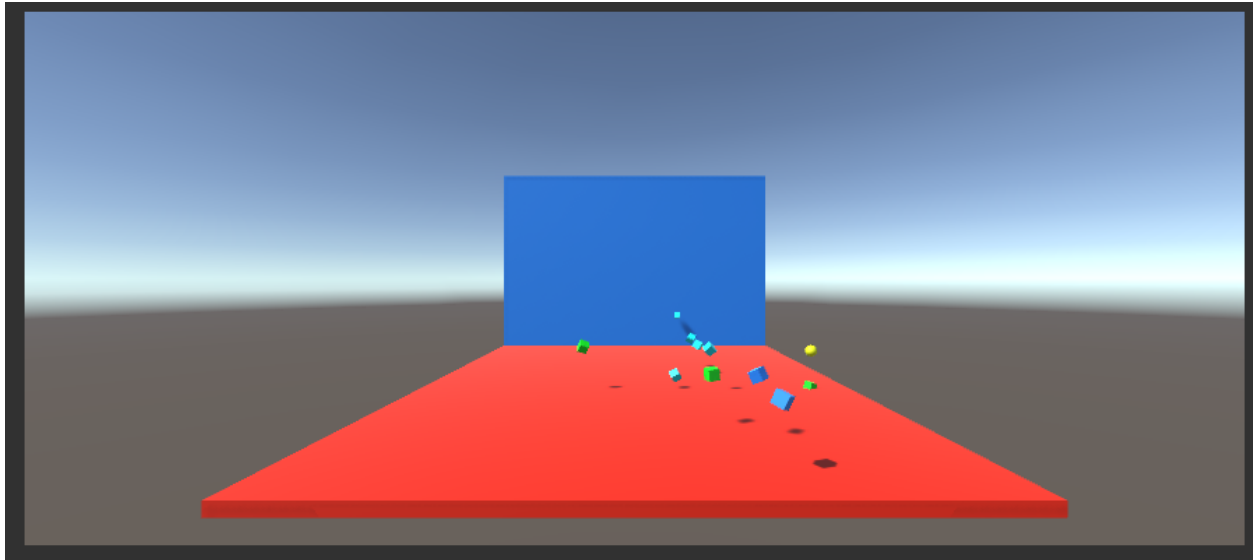
Question-1:



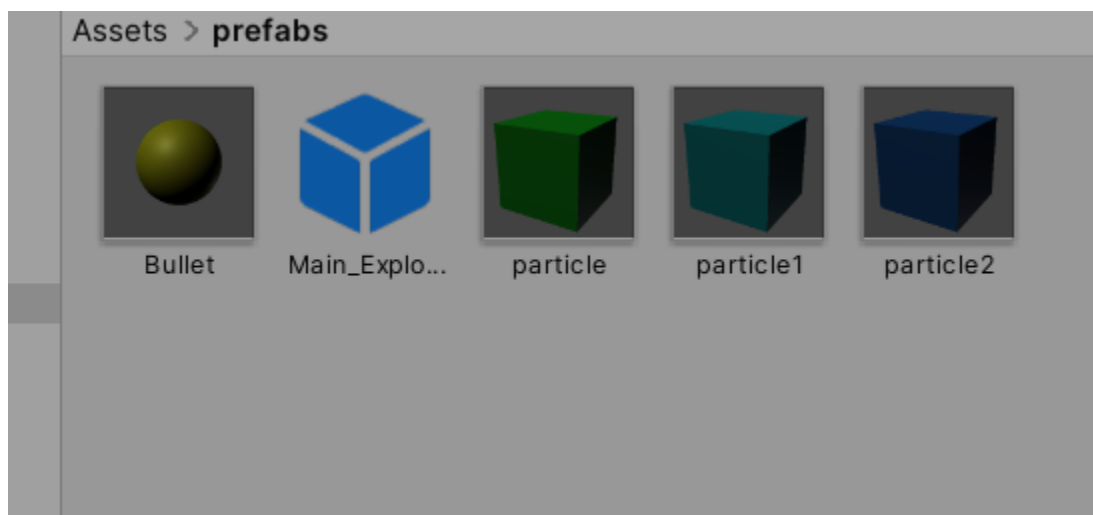
(Part a and b)



(Part c)



(Part d)



Prefabs

Question 1 code drive link:

https://drive.google.com/file/d/1J_7-a7ZHbPboNviJ6Rje5NvUjtEhRy3s/view?usp=sharing

Question-2:



```
C:\Users\mukul>git clone https://github.com/Unity-Technologies/ml-agents
```

2.1 Cloning Repo

Anaconda Prompt (Anaconda3)

```
(base) C:\Users\mukul>python -m venv Ques2
```

2.2 Creating virtual environment

```
(base) C:\Users\mukul>Ques2\Scripts\activate
```

2.3 Activating virtual environment

```
Select Anaconda Prompt (Anaconda3)

(Q2env) (base) C:\Users\saksh>pip3 install torch torchvision torchaudio
Collecting torch
  Downloading torch-1.11.0-cp38-cp38-win_umd64.whl (158.0 MB)
    | 158.0 MB 25 kB/s
Collecting torchvision
  Downloading torchvision-0.12.0-cp38-cp38-win_umd64.whl (1.0 MB)
    | 1.0 MB 234 kB/s
Collecting torchaudio
  Downloading torchaudio-0.11.0-cp38-cp38-win_umd64.whl (372 kB)
    | 372 kB 163 kB/s
Collecting typing-extensions
  Downloading typing_extensions-4.1.1-py3-none-any.whl (26 kB)
Collecting numpy
  Downloading numpy-1.22.3-cp38-cp38-win_umd64.whl (14.7 MB)
    | 14.7 MB 139 kB/s
Collecting requests
  Downloading requests-2.27.1-py2.py3-none-any.whl (63 kB)
    | 63 kB 84 kB/s
Collecting pillow<8.3.0, >=5.1.0
  Downloading Pillow-9.0.1-cp38-cp38-win_umd64.whl (3.2 MB)
    | 3.2 MB 211 kB/s
Collecting charset-normalizer<=2.0.0; python_version >= "3"
  Downloading charset_normalizer-2.0.12-py3-none-any.whl (39 kB)
Collecting idna<4, >=2.5; python_version >= "3"
  Downloading idna-3.3-py3-none-any.whl (61 kB)
    | 61 kB 206 kB/s
Collecting urllib3<1.27, >=1.21.1
  Downloading urllib3-1.26.8-py2.py3-none-any.whl (138 kB)
    | 138 kB 242 kB/s
Collecting certifi<=2021.4.17
  Downloading certifi-2021.10.8-py2.py3-none-any.whl (149 kB)
    | 149 kB 261 kB/s
Installing collected packages: typing-extensions, torch, numpy, charset-normalizer, idna, urllib3, certifi, requests, pillow, torchvision, torchaudio
Successfully installed certifi-2021.10.8 charset-normalizer-2.0.12 idna-3.3 numpy-1.22.3 pillow-9.0.1 requests-2.27.1 torch-1.11.0 torchaudio-0.11.0 torchvision-0.12.0 typing-extensions-4.1.1 urllib3-1.26.8
WARNING: You are using pip version 20.2.3; however, version 22.0.4 is available.
You should consider upgrading via the 'c:\Users\saksh\q2env\scripts\python.exe -m pip install --upgrade pip' command.

(Q2env) (base) C:\Users\saksh>pip3 install torch_
```

2.4 Installing torch torchvision torchaudio

```
(Ques2) (base) C:\Users\mukul>cd ml-agents/ml-agents-envs
```

2.5.1

```
(Ques2) (base) C:\Users\mukul\ml-agents\ml-agents-envs>pip install -e .
Obtaining file:///C:/Users/mukul/ml-agents/ml-agents-envs
  Preparing metadata (setup.py) ... done
Collecting cloudpickle
  Downloading cloudpickle-2.0.0-py3-none-any.whl (25 kB)
Collecting grpcio>=1.11.0
  Downloading grpcio-1.44.0-cp37-cp37m-win32.whl (2.9 MB)
----- 2.9/2.9 MB 973.5 kB/s eta 0:00:00
Requirement already satisfied: numpy>=1.14.1 in c:\users\mukul\ques2\lib\site-packages (from mlagents-envs==0.29.0.dev0) (1.21.5)
Collecting Pillow>=4.2.1
  Using cached Pillow-9.0.1-cp37-cp37m-win32.whl (2.8 MB)
Collecting protobuf>=3.6
  Downloading protobuf-3.19.4-cp37-cp37m-win32.whl (776 kB)
----- 776.2/776.2 KB 802.9 kB/s eta 0:00:00
Collecting pyyaml>=3.1.0
  Downloading PyYAML-6.0-cp37-cp37m-win32.whl (138 kB)
----- 138.6/138.6 KB 482.7 kB/s eta 0:00:00
Collecting six>=1.5.2
  Using cached six-1.16.0-py2.py3-none-any.whl (11 kB)
Installing collected packages: six, pyyaml, protobuf, Pillow, cloudpickle, grpcio, mlagents-envs
  Running setup.py develop for mlagents-envs
Successfully installed Pillow-9.0.1 cloudpickle-2.0.0 grpcio-1.44.0 mlagents-envs-0.29.0.dev0 protobuf-3.19.4 pyyaml-6.0 six-1.16.0
```

2.5.2

```
(Ques2) (base) C:\Users\mukul\ml-agents\ml-agents-envs>cd ..
```

```
(Ques2) (base) C:\Users\mukul\ml-agents>cd ml-agents
```

2.5.3 and 2.5.4

```

(Ques2) (base) C:\Users\mukul\ml-agents\ml-agents>pip install -e .
Obtaining file:///C:/Users/mukul/ml-agents/ml-agents
  Preparing metadata (setup.py) ... done
Requirement already satisfied: grpcio>=1.11.0 in c:\users\mukul\ques2\lib\site-packages (from mlagents==0.29.0.dev0) (1.44.0)
Collecting h5py>=2.9.0
  Downloading h5py-3.6.0.tar.gz (384 kB)
----- 384.2/384.2 KB 2.0 MB/s eta 0:00:00
  Installing build dependencies ... done
  Getting requirements to build wheel ... done
  Preparing metadata (pyproject.toml) ... done
Requirement already satisfied: mlagents_envs==0.29.0.dev0 in c:\users\mukul\ml-agents\ml-agents-envs (from mlagents==0.29.0.dev0) (0.29.0.dev0)
Requirement already satisfied: numpy<2.0,>=1.13.3 in c:\users\mukul\ques2\lib\site-packages (from mlagents==0.29.0.dev0) (1.21.5)
Requirement already satisfied: Pillow>=4.2.1 in c:\users\mukul\ques2\lib\site-packages (from mlagents==0.29.0.dev0) (9.0.1)
Requirement already satisfied: protobuf>=3.6 in c:\users\mukul\ques2\lib\site-packages (from mlagents==0.29.0.dev0) (3.19.4)
Requirement already satisfied: pyyaml>=3.1.0 in c:\users\mukul\ques2\lib\site-packages (from mlagents==0.29.0.dev0) (6.0)
Collecting tensorboard>=1.15
  Downloading tensorboard-2.8.0-py3-none-any.whl (5.8 MB)
----- 5.8/5.8 MB 5.7 MB/s eta 0:00:00
Collecting attrs>=19.3.0
  Downloading attrs-21.4.0-py2.py3-none-any.whl (60 kB)
----- 60.6/60.6 KB 3.1 MB/s eta 0:00:00
Collecting pypiwin32==223
  Downloading pypiwin32-223-py3-none-any.whl (1.7 kB)
Collecting cattrs<1.1.0
  Downloading cattrs-1.0.0-py2.py3-none-any.whl (14 kB)
Collecting importlib_metadata
  Downloading importlib_metadata-4.11.3-py3-none-any.whl (18 kB)
Requirement already satisfied: cloudpickle in c:\users\mukul\ques2\lib\site-packages (from mlagents_envs==0.29.0.dev0->mlagents==0.29.0.dev0) (2.0.0)
Collecting pywin32>=223
  Downloading pywin32-303-cp37-cp37m-win32.whl (8.5 MB)
----- 8.5/8.5 MB 8.2 MB/s eta 0:00:00
Requirement already satisfied: six>=1.5.2 in c:\users\mukul\ques2\lib\site-packages (from grpcio>=1.11.0->mlagents==0.29.0.dev0) (1.16.0)
Collecting cached-property
  Downloading cached_property-1.5.2-py2.py3-none-any.whl (7.6 kB)
Collecting requests<3,>=2.21.0
  Downloading requests-2.27.1-py2.py3-none-any.whl (63 kB)
----- 63.1/63.1 KB 3.3 MB/s eta 0:00:00
Collecting tensorboard-plugin-wit>=1.6.0
  Downloading tensorboard_plugin_wit-1.8.1-py3-none-any.whl (781 kB)
----- 781.3/781.3 KB 7.0 MB/s eta 0:00:00

```

2.5.5


```
Collecting werkzeug>=0.11.15
  Downloading Werkzeug-2.0.3-py3-none-any.whl (289 kB)
----- 289.2/289.2 KB 3.0 MB/s eta 0:00:00
Collecting google-auth-oauthlib<0.5,>=0.4.1
  Downloading google_auth_oauthlib-0.4.6-py2.py3-none-any.whl (18 kB)
Collecting tensorboard-data-server<0.7.0,>=0.6.0
  Downloading tensorboard_data_server-0.6.1-py3-none-any.whl (2.4 kB)
Collecting wheel>=0.26
  Using cached wheel-0.37.1-py2.py3-none-any.whl (35 kB)
Collecting google-auth<3,>=1.6.3
  Downloading google_auth-2.6.0-py2.py3-none-any.whl (156 kB)
----- 156.3/156.3 KB 4.7 MB/s eta 0:00:00
Collecting markdown>=2.6.8
  Downloading Markdown-3.3.6-py3-none-any.whl (97 kB)
----- 97.8/97.8 KB 5.8 MB/s eta 0:00:00
Collecting absl-py>=0.4
  Downloading absl_py-1.0.0-py3-none-any.whl (126 kB)
----- 126.7/126.7 KB 7.3 MB/s eta 0:00:00
Collecting setuptools>=41.0.0
  Using cached setuptools-60.9.3-py3-none-any.whl (1.1 MB)
Collecting zipp>=0.5
  Downloading zipp-3.7.0-py3-none-any.whl (5.3 kB)
Collecting typing-extensions>=3.6.4
  Downloading typing_extensions-4.1.1-py3-none-any.whl (26 kB)
Collecting rsa<5,>=3.1.4
  Downloading rsa-4.8-py3-none-any.whl (39 kB)
Collecting pyasn1-modules>=0.2.1
  Downloading pyasn1_modules-0.2.8-py2.py3-none-any.whl (155 kB)
----- 155.3/155.3 KB 9.1 MB/s eta 0:00:00
Collecting cachetools<6.0,>=2.0.0
  Downloading cachetools-5.0.0-py3-none-any.whl (9.1 kB)
Collecting requests-oauthlib>=0.7.0
  Downloading requests_oauthlib-1.3.1-py2.py3-none-any.whl (23 kB)
Collecting urllib3<1.27,>=1.21.1
  Downloading urllib3-1.26.8-py2.py3-none-any.whl (138 kB)
----- 138.7/138.7 KB 4.1 MB/s eta 0:00:00
Collecting idna<4,>=2.5
  Downloading idna-3.3-py3-none-any.whl (61 kB)
----- 61.2/61.2 KB ? eta 0:00:00
Collecting charset-normalizer~=2.0.0
  Downloading charset_normalizer-2.0.12-py3-none-any.whl (39 kB)
Collecting certifi>=2017.4.17
  Downloading certifi-2021.10.8-py2.py3-none-any.whl (149 kB)
----- 149.2/149.2 KB 8.7 MB/s eta 0:00:00
Collecting pyasn1<0.5.0,>=0.4.6
  Downloading pyasn1-0.4.8-py2.py3-none-any.whl (77 kB)
----- 77.1/77.1 KB ? eta 0:00:00
Collecting oauthlib>=3.0.0
  Downloading oauthlib-3.2.0-py3-none-any.whl (151 kB)
```