The Origins of the Internet

- The Internet that has become so much a part of today’s world got its start as the ARPANET in the late 1960s.
- The contract to build the ARPANET was awarded to Bolt Beranek and Newman Inc. (BBN), a small, Cambridge-based research and development firm founded by MIT engineers.
- On October 29th, 1969, then UCLA student Charley Kline sent the first message on ARPANET. The message was supposed to be the word “login”, but only “io” was transmitted before the system crashed.
- A prototype implementation of the ARPANET connecting four nodes came online in early December 1969.
- The initial design for the ARPANET allowed for a maximum of 127 connected computers. Larger networks were possible only after the TCP/IP protocols were adopted in the 1980s.

Early Designs for the ARPANET

As Larry Roberts envisioned it in his notebooks.

The ARPANET in 1971

As deployed in 1969.

The ARPANET in 1971

The ARPANET Directory
Life among the Wizards

The history of the Internet has been told in several books. One tells the following story:

A small circle of friends at BBN had gotten hooked on Dungeons and Dragons, an elaborate fantasy role-playing game in which one player creates a setting and populates it with monsters and puzzles, and the other players then make their way through that setting. The game exists only in the minds of the players.

Dave Walden got his introduction to the game one night when Eric Roberts, a student from a class he was teaching at Harvard, took him to a D&D session. Walden immediately rounded up a group of friends from the ARPANET team for continued sessions. Roberts created the Mirkwood Tales.

One of the regulars was Will Crowther.

The history of the Internet has been told in several books. One tells the following story:

Will Crowther’s Adventure Game

Welcome to ADVENTURE!! Would you like instructions? YES

Somewhere nearby is Colossal Cave, where others have found fortunes in treasure and gold, though it is rumored that some who enter are never seen again. Magic is said to work in the cave. I will be your eyes and hands. Direct me with natural English commands; I don’t understand all of the English language, but I do a pretty good job. (Should you get stuck, type “HELP” or “?” for some general hints.)

Good Luck!

You are standing at the end of a road before a small brick building. Around you is a forest. A small stream flows out of the building and down a gully to the south. The road runs up a small hill to the west. GO INSIDE

You are inside a building, a well house for a large spring. There are some keys on the ground here.

A Brief History of Adventure

• Eric Roberts begins the Mirkwood Tales in early 1975.
• Will Crowther creates Adventure later that year.
• Will moves to Xerox/PARC in 1976.
• Stanford graduate student Don Woods releases an expanded version of Adventure in early 1977.
• Dave Lebling and others from MIT release the first version of Zork in 1977. That game later becomes the foundation of the computer game company Infocom.
• Adventure is ported to a wide variety of platforms by 1980.
• Eric Roberts creates an expanded version in 1984 and uses it as the basis for his first Adventure Contest at Wellesley.

Classes in the Adventure Game

AdvGame Contains the code and data necessary to play the game.
AdvRoom Maintains the data structure for each room in the cave.
AdvObject Maintains the data structure for each object that can be carried by the player.
Milestone #1

- Adapt the code from the Teaching Machine application so that it uses the class and method names for Adventure.
- Once you finish this milestone, you should be able to wander around the surface geography of the game.

```plaintext
You are standing at the end of a road before a small brick building. A small stream flows out of the building and down a gully to the south. A road runs up a small hill to the east.
```

Milestone #2

- Implement the `setVisited` and `hasBeenVisited` methods in `AdvRoom`.
- Check this flag in the code that describes a room.
- Once you finish this milestone, the program should use the short descriptions when you enter a previously visited room.

```plaintext
You are standing at the end of a road before a small brick building. A small stream flows out of the building and down a gully to the south. A road runs up a small hill to the east.
```

Milestone #3

- Implement the `QUIT`, `HELP`, and `LOOK` commands.
- Once you finish this milestone, the player can end the game, see the help text, and redisplay the room's long description.

```plaintext
You are standing at the end of a road before a small brick building. A small stream flows out of the building and down a gully to the south. A road runs up a small hill to the east.
```

Milestone #4

- Implement the `AdvObject` class.
- Implement the methods in the `AdvRoom` class that make it possible to keep track of the objects in a room.
- In the `AdvNames` class, write the code to put each object in its initial room (ignore the room name "SLIT IN ROCK" for now).
- Change the code to display a room so that it lists the objects.
- This milestone allows you to see (but not yet take) objects.

```plaintext
You are standing at the end of a road before a small brick building. A small stream flows out of the building and down a gully to the south. A road runs up a small hill to the east.
```

The SmallRooms.txt Data File

- Adapt the code from the Teaching Machine application so that it uses the class and method names for Adventure.
- Once you finish this milestone, you should be able to wander around the surface geography of the game.

```plaintext
You are standing at the end of a road before a small brick building. A small stream flows out of the building and down a gully to the south. A road runs up a small hill to the east.
```

The SmallRooms.txt Data File

- Adapt the code from the Teaching Machine application so that it uses the class and method names for Adventure.
- Once you finish this milestone, you should be able to wander around the surface geography of the game.

```plaintext
You are standing at the end of a road before a small brick building. A small stream flows out of the building and down a gully to the south. A road runs up a small hill to the east.
```
The SmallObjects.txt Data File

Milestone #5

- Implement the \texttt{TAKEN}, \texttt{DROPPED}, and \texttt{INVENTORY} commands and any code you need to remember what the player is carrying.

<table>
<thead>
<tr>
<th>item</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>a bottle of water</td>
</tr>
<tr>
<td>Keys</td>
<td>a set of keys</td>
</tr>
<tr>
<td>Lamp</td>
<td>a brightly shining brass lamp</td>
</tr>
<tr>
<td>Rood</td>
<td>a black rod with a rusty star</td>
</tr>
<tr>
<td>Debris Room</td>
<td></td>
</tr>
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<td></td>
</tr>
</tbody>
</table>

The SmallSynonyms.txt Data File

Milestone #6

- Implement synonym processing so that the player can use abbreviated forms of the direction verbs and alternative names for the objects.

Welcome to adventure:
You are standing at the end of a road before a small brick building. A small stream flows out of the building and down a gully to the south. A road runs up a small hill to the west.

You are carrying:
- a bottle of water

You are at the end of a road at the top of a small hill. You can see a small building in the valley to the east.

The SmallRooms.txt Data File

Milestone #7

- Implement locked passages, which are passages that require a particular object be held, as illustrated on the next slide.
- Making this change requires moving the \texttt{getNextRoom} code from \texttt{AdvRoom} to \texttt{AdvGame} so that it can see the objects.

Welcome to adventure:
You are inside a building, a well house for a large spring. The exit door is to the south. There is another room to the north, but the door is barred by a shimmering curtain.

You are carrying:
- a bottle of water
- a set of keys
- a brightly shining brass lamp
- a black rod with a rusty star

You are in a 25-foot depression floored with bare dirt. Set into the dirt is a strong steel grate mounted in concrete. A dry streambed leads into the depression from the north.

The grate is locked and you don't have any keys.
Milestone #8

- Implement **forced motion** in which the player is forced to move from a room even before reading a command. Forced motion is indicated by the verb **FORCED**.
- It is important to ensure that your implementation of forced motion allows those passages to be locked. This combination of features is used to implement the shimmering curtain.

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You are in a 20-foot depression floored with bare dirt. The grate that covers the depression is mounted in concrete. A dry streambed leads into the depression from the north.

You are carrying:
- A bottle of water

The grate is locked and you don’t have any keys.

Outside grate.