**All bolded terms must be represented on your diagram in some way. A skeleton for the diagram has been provided.**

A flying saucer has touched down near Area 51! The aliens inside will now attempt to signal that they come in peace to the human spectators nearby.

Our **simulation starts** with the saucer landed. The aliens **generate** a rhythm. The aliens **play** the rhythm, which the saucer **broadcasts** to the human **spectators.** The spectators **adjust their equipment,** then attempt to **play** the rhythm back to the saucer, which **displays** the sound waves to the aliens on a screen. If the rhythm is mismatched, the aliens keep sending the rhythm, the spectators keep adjusting their equipment, and this continues until the spectators get it right. The aliens then generate a new rhythm and the entire process starts again. Once **five** successful matching rhythms are played, the aliens feel brave enough to **open the hatch of the saucer** and **step outside.** The aliens **ask the spectators who the spectators' leader is**, and the **spectators** immediately **respond** with the leader of the facility.

**Create a Sequence Diagram to model this program.**

**Rubric**

*Sequence Initiation (based very loosely on this year's Exam 2 Rubric)*
A message resembling "Simulation starts" is used over the topmost arrow to initiate the sequence [+3]
No message, but arrow that initiates the sequence exists [+2]
No arrow, but the message exists [+1]

*Loop to repeat fixed amount of times*
Loop to repeat 5 times exists and wraps around the correct part of the sequence. [+3]
Outside loop that iterates a fixed amount of times exists, but is not the correct amount. [+2]
Loop to repeat 5 times exists but wraps around the wrong part of the sequence. [+1]

*Generate message*
An arrow points from aliens object to itself, and is labelled "generate rhythm" [+2]
An arrow points from aliens object to itself, but is labelled incorrectly [+1]
An arrow is labelled generate rhythm, but does not point or originate in the correct place [+1]

*Inner Loop*
An inner loop that repeats if the aliens' and spectators' rhythm are mismatched exists and wraps around the correct part of the sequence. [+3]
Loop exists, but wraps around the generated rhythm as well. [+2]

Condition is incorrect. [+2]
Loop wraps around differently than mentioned immediately above, and is not correct [+1]
The condition is incorrect and the “play generated rhythm” arrow is included in the loop [+1]
If the condition is incorrect and the loop is misplaced past simply including the “play generated rhythm” arrow, no points are awarded.

*Play generated rhythm*
Solid arrow points from Aliens object to Saucer object labelled “play generated rhythm” [+2]
Arrow is dashed [+1]

*Broadcast alien’s rhythm*
Solid arrow points from Saucer object to Spectators object labelled “broadcast aliens’ rhythm” [+2]
Arrow is dashed [+1]

*Adjust equipment*
Solid arrow points from Spectators object to itself labelled “adjust equipment” [+2]
Arrow is dashed [+1]

*Play humans’ rhythm*
Dashed arrow points from Spectators object to Saucer object labelled “play humans’ rhythm” [+2]
Arrow is solid [+1]

*Display sound waves of humans’ rhythm*
Dashed arrow points from Saucer object to Aliens object labelled “display sound waves of humans’ rhythm” [+2]
Arrow is solid [+1]

*Open hatch*
Outside both loops, solid arrow points from Aliens to Saucer object labelled “open hatch” [+2]
Arrow is dashed [+1]

*Step outside*
Solid arrow points from Aliens object to itself labelled “step outside” [+2]
Arrow is dashed [+1]

*Ask who leader is*
Solid arrow points from Aliens object to Spectators object labelled “ask who leader is” [+2]
Arrow is dashed [+1]

*Facility Leader*
Dashed arrow points from Spectators object to Aliens object labelled “facility leader” [+2]
Arrow is solid [+1]

*Activation Boxes*
Add one point for every object whose activation box starts at the first call to/from the object to the last call to/from the object. [up to +3]
*Alternatively, activation boxes can be split to accommodate “mini-sequences” of events. Give [+1] for every object this was correctly implemented for. [up to +3, alternative to above]*

**Result: __ / 32**

**Note:** If possible, please let us know if this is used, as we would be interested to know!