

Pearson Edexcel GCE

Applied Information and Communication Technology

Unit 3: The Knowledge Worker

May 2016

Scenario

Paper Reference

6953/01

The scenario should be distributed to candidates at least three working weeks before the examination.

Practice files: LML_practice.xlsx, july_tides_practice.txt

This scenario should be used for the purposes of preparing candidates for the examination. This copy **must not** be taken into the examination. The information contained in the scenario will be included in the examination paper.

Further details are in the Instructions for the Conduct of Examinations (ICE), available from the Pearson Edexcel website for this qualification.

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PEARSON

Scenario

Last Minute Laura

Tommy Baker spent most of his working life at sea. He left school at 15 to work on his father's fishing boat. This was at a time when fish stocks were thought to be plentiful and the idea of fishing quotas had not occurred to anyone. The boat Tommy worked on was one of a fleet of over 50 fishing vessels that left Warburton Harbour every day.

In 1976 Tommy retired and, as was the tradition, his eldest son, Sam, took over as Skipper. Fish quotas had been in force for a number of years when Sam took over and had started to have an impact. Several skippers had called it a day as it was getting more and more difficult to eke out a living as a fisherman whilst maintaining sustainable fish stocks.

Sam continued for as long as he could because he knew it would break his father's heart to end the family tradition. Eventually, however, Sam had to bow to the inevitable and in 2006 he retired his boat from the fleet. For several years Sam (and his son Tommy Jr.) made a living by chartering his boat out for pole fishing. He took groups of anglers out to catch herring and sea bass. There was, however, a lot of competition and there were long periods when they had no work at all.

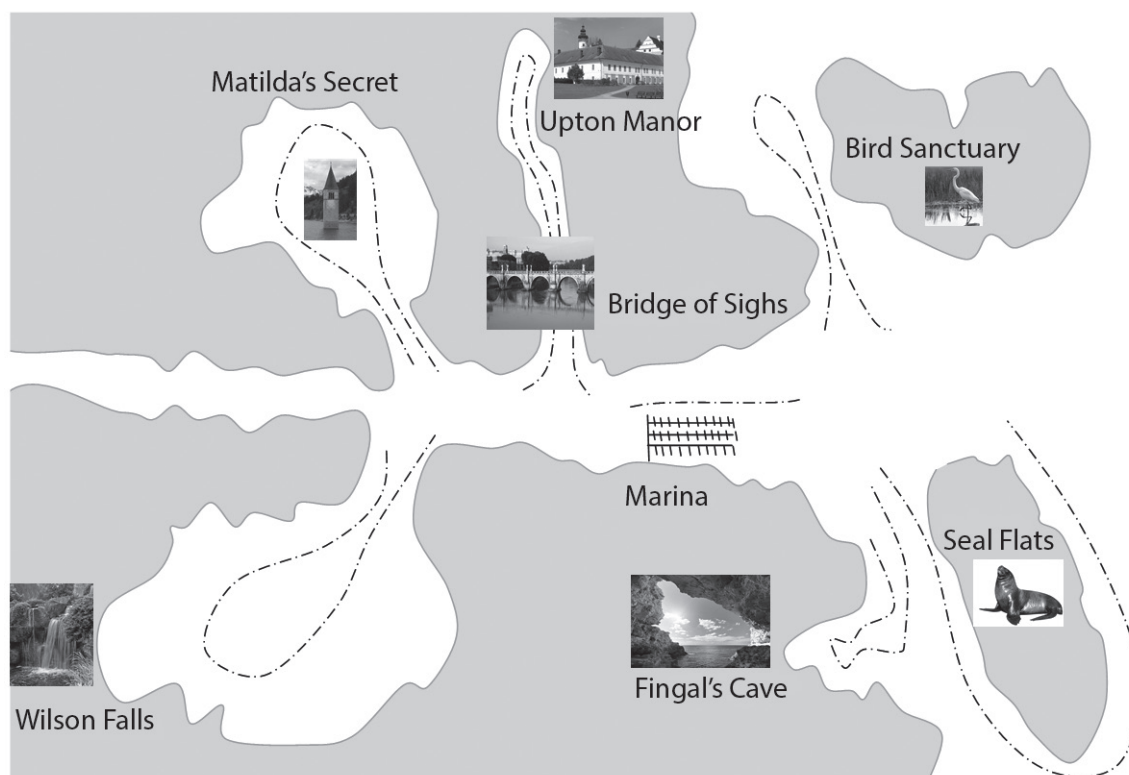
Last year Tommy Jr. took over the boat. He decided the business needed a new direction. His younger sister, Tilly, had just left sixth form college where she had successfully studied GCE Applied ICT and a BTEC in Leisure and Tourism. Tommy's idea was to run boat trips for tourists. He sold the fishing boat and used the money to buy a second-hand passenger cruiser called 'Last Minute Laura'. Although the demand would be seasonal, Tilly identified a number of attractions in the local area that would ensure that the trips were popular.

After discussions, Tilly and Tommy Jr. chose these attractions to build their boat trips around.

Attraction	Description	Passage Requirements
Bird Sanctuary	On the north-west side of Cooper's Island there is a bird sanctuary that provides the habitat for many species of marine bird. There is no public access to Cooper's Island but the bird sanctuary is visible from the channel between the island and the mainland.	There is a channel on the west side of Cooper's Island that provides a good view of the sanctuary. The channel is navigable by 'Last Minute Laura' if there is at least 1.8 m of tidal water.
Seal Flats	At high tide, the eastern sandbanks are below the surface of the water; however at low tide large areas of the sandbanks are exposed. During this time a large number of seals come out of the water to bask in the sun.	The sandbanks at Seal Flats are only visible when there is 3.8 m of tidal water or less. Any more than this would submerge the entire sandbanks and the seals would take to the water.

Bridge of Sighs	The Bridge of Sighs spans the River Ewe and used to connect the two halves of the medieval village of Colme. It is called the Bridge of Sighs as it connected the magistrate's court to the scaffold where hangings took place.	The Bridge of Sighs is viewed on the way to Upton Manor and also on the way back. To pass under the bridge, 'Last Minute Laura' requires at least 2.5 m of tidal water to avoid running aground. There must be no more than 6 m of tidal water otherwise the boat's superstructure will hit the bridge.
Upton Manor	Thanks to a long-running Elizabethan themed soap opera, Upton Manor is famous throughout the country as 'Priory House', the home of the fictional family of Lord Colme. In actual fact it was built in the 1960s by a self-made millionaire who made his money from greetings cards. Upton Manor stands upriver from the Bridge of Sighs.	There are no tidal requirements for Upton Manor but the Bridge of Sighs has to be passed both on the way there and back.
Matilda's Secret	In the 1950s Colme Valley was flooded as part of an ill-conceived hydroelectric project. Unfortunately the village of Colme had to be evacuated to do this. There is a rumour that all the valuables from the local church (St Matilda's) were hidden in the spire. At low tide the spire is visible and is known locally as Matilda's Secret.	Colme Valley itself has no tidal requirements for navigation, however the spire can only be seen if there is 4 m or less of tidal water.
Wilson Falls	Wilson Falls is 80 m in height. The view at the bottom looking up is spectacular.	The Wilson Falls basin is quite shallow so to get near enough to view the falls there has to be at least 1.6 m of tidal water.
Fingal's Cave	Named after the Hebridean cave, which was the inspiration for Mendelssohn's famous piece of music, this Fingal's Cave is a navigable channel under the cliffs. A medium-sized boat can be driven through the cave for about half a mile with the cliffs above you.	For 'Last Minute Laura' to pass through Fingal's Cave there must be between 2.5 m and 6 m of tidal water.

When travelling on the viewing routes the boat sails at a constant speed of 8 knots. All trips start and finish at the marina. When passing the marina there is a speed limit of 8 knots. Elsewhere the speed of the boat will be 15 knots.



Tilly has prepared a model and has employed you to make it easier to use. She also wants you to decide the order and timings of trips. The model needs the tides in the area on the day. These are worked out using the sine (SIN) and cosine (COS) of the angle the Moon (and to a lesser extent the Sun) makes with the Earth. This is known as the phase angle. The harbour master has worked out the tide figures for July.

The model is a spreadsheet with these worksheets.

Worksheet	Description
Selection	In this worksheet the start times and order of visits are set for a week's trips. You can select the week you are planning for. There are areas for Monday, Wednesday and Friday. For each day you can select a start time and an order of visits. There is an area to show if the trip is viable.
Data	This worksheet calculates the height of tidal water at the time an attraction is visited.

Week Tide	This worksheet calculates the times and heights of tidal water at high tides and low tides for the week selected in the 'Selection' worksheet.
Base Times	This worksheet contains the times it would take to sail between attractions. These have been worked out by Tommy Jr. by sailing between them six times each and taking an average.
Marina	This worksheet indicates whether the marina has to be passed when sailing between two of the attractions.
Sights	This worksheet contains a list of the attractions and the amount of tidal water that constrains the times at which they can be visited. It also contains how long Tommy Jr. has said it will take to pass the attraction.
July Tides	This worksheet contains the tide data for July.

Some cells in the model are password protected. Should you wish to experiment with the model, the password is *edexcel*. Be aware that if you change the contents of any protected cell the model may not work.