Edexcel GCE

Applied Information and Communication Technology

Unit 3: The Knowledge Worker

May 2012

Scenario

Paper Reference
6953/01

The scenario should be distributed to candidates at least three working weeks before the examination.
Practice files: PriauxData_practice.pdf, Patrick_practice.xls

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 of the Conduct of Examinations (ICE), available from the Edexcel website for this qualification.

Edexcel will not accept any request for special consideration should candidates be given the incorrect scenario for the examination they are sitting.

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PEARSON

Scenario

Patrick Racing

Dan Patrick was a talented motor racing driver. He drove in Formula 1 (F1) for three seasons from 1972–74. Although he won several Grand Prix races, he was never crowned world champion. His driving career was brought to a sudden end at Monza, when a tiny misjudgement on the exit of the Parabolica resulted in a serious accident. There followed a long and arduous stay in hospital where he had to learn to walk again. Although he can now walk, he is unable to bend his left ankle and his right knee has to be exercised regularly to prevent it from seizing up.

Dan Patrick loves motor racing and, having been robbed of the ability to drive, he put his skill, knowledge, determination and a significant amount of money into the development of 'Patrick Racing'. Initially 'Patrick Racing' ran small teams in Formula BMW and Formula Renault. This year it is running a team in the brand new F1 Junior formula, which is considered to be the training ground for F1 itself.

The F1 Junior formula is for petrol-powered cars of 3000cc or less. The competition consists of 12 races on European Grand Prix circuits. Each race is about 395 km long.

Regulations state that at least one but fewer than five pit stops should be made in a race, when tyres must be changed and fuel may be added. They also state that no part of a car, except the tyres, should be less than 2 cm from the ground. In addition, a car and driver should weigh no less than 640 kg at the end of the race. Any breach of regulations could result in disqualification.

If the weight of a car with a driver in it is less than the required minimum, ballast can be added to the car to ensure the minimum weight is attained. Ballast can only be added before a race starts.

Each team runs two cars. 'Patrick Racing's' drivers are Pete Lawson and Cathryn Williams, better known as CJ.

Pete Lawson, at 35, is a driver who is slowly coming to terms with the fact that he will never make it to the very top. He is 175 cm tall and weighs 61 kg.

CJ on the other hand is an up and coming star. A lot of very knowledgeable people have predicted that she will be the first female world champion. Her height is 151 cm and she weighs 53 kg.

The 'Patrick Racing' cars weigh 560 kg each and their fuel tank capacity is 250 litres.

The tyres are supplied to all teams by a single company. For each race the teams have a choice of tyres made from four different compounds. These are known by the teams as Tyre A, Tyre B, Tyre C and Tyre D. Tyre A is the softest compound and Tyre D is the hardest. Tyres B and C are in between. The softer a tyre's compound, the better the grip and therefore the faster the car goes when the tyre is new. However, softer compounds wear more quickly and when a tyre wears the grip is reduced and the car cannot be driven as quickly.

Each team nominates the tyre compound they will use and although they can put on new tyres of the nominated compound during a pit stop, they cannot put on a different type of tyre.

The next race is at the Priaux circuit in Belgium and teams are busy preparing for it. A challenge is that the management of the circuit has recently had the track resurfaced so any existing data relevant to pit stops and tyre performance is no longer valid. Dan has dispatched his chief mechanic, Tom Cole-Shaw, to Priaux along with a test driver and a team of mechanics to run timing tests. The data they produce will be entered into a model which, when complete, will inform the team's decisions.

You are the team's IT specialist and Dan has asked you to complete the model and use it to make some recommendations.

Description of the model

Worksheet	**Description**
Summary	In this worksheet you can choose tyre compound for the race and how much fuel to add at the start of the race and at each pit stop. Other parameters can also be set on this worksheet.
Lap Times	This worksheet calculates various parameters for each lap depending on values entered in the Summary worksheet. It will give a lap-by-lap status for the car during the virtual race.
Stats	This worksheet will contain statistics which you will enter.
Tyre Details	This worksheet calculates a lap-by-lap time prediction for each tyre. These times assume ideal circumstances.

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.