

Challenge Pack

AWS Get IT
2018/19

For Year 8 students
at registered schools



aws | Get IT



we power tech



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The Challenge



Design an app that tackles or solves a problem in your school or local area



Congratulations on taking up the Amazon Web Services (AWS) Get IT Challenge!

The programme is designed to inspire more young people, girls especially, to get into IT and gain digital skills. You will learn more about technology as a possible career option from industry experts, learn how to build and bring your own application to market, and maybe even consider a career in IT and app making!

We invite year 8 students at participating schools to form a team of 3 to 7 students (at least 50 % female) to invent an application that can be used to improve or address a social issue impacting your local school or community. The app for example could aim to solve a litter or literacy issue, or it could be a social app aimed at supporting new students starting at your school. The ideas are endless and we can't wait to see yours!

The schools with the best ideas will be invited to present to a panel of industry experts at the AWS Summit in London, in May 2019. The AWS panel will select a winning team and with the support of AWS experts, their app idea will be made in to reality.

In this challenge you will:

- Learn about “design thinking” and how to evolve your thoughts.
- Work as a team to push your ideas further than before.
- Record your progress in a scrapbook or folder to look back on.
- Attend a professional bootcamp to get hands on advice from industry experts.
- Use your creativity to build storyboards, presentations and prototypes for a new app.
- Share your experiences with students from around the country.

The Challenge Timeline

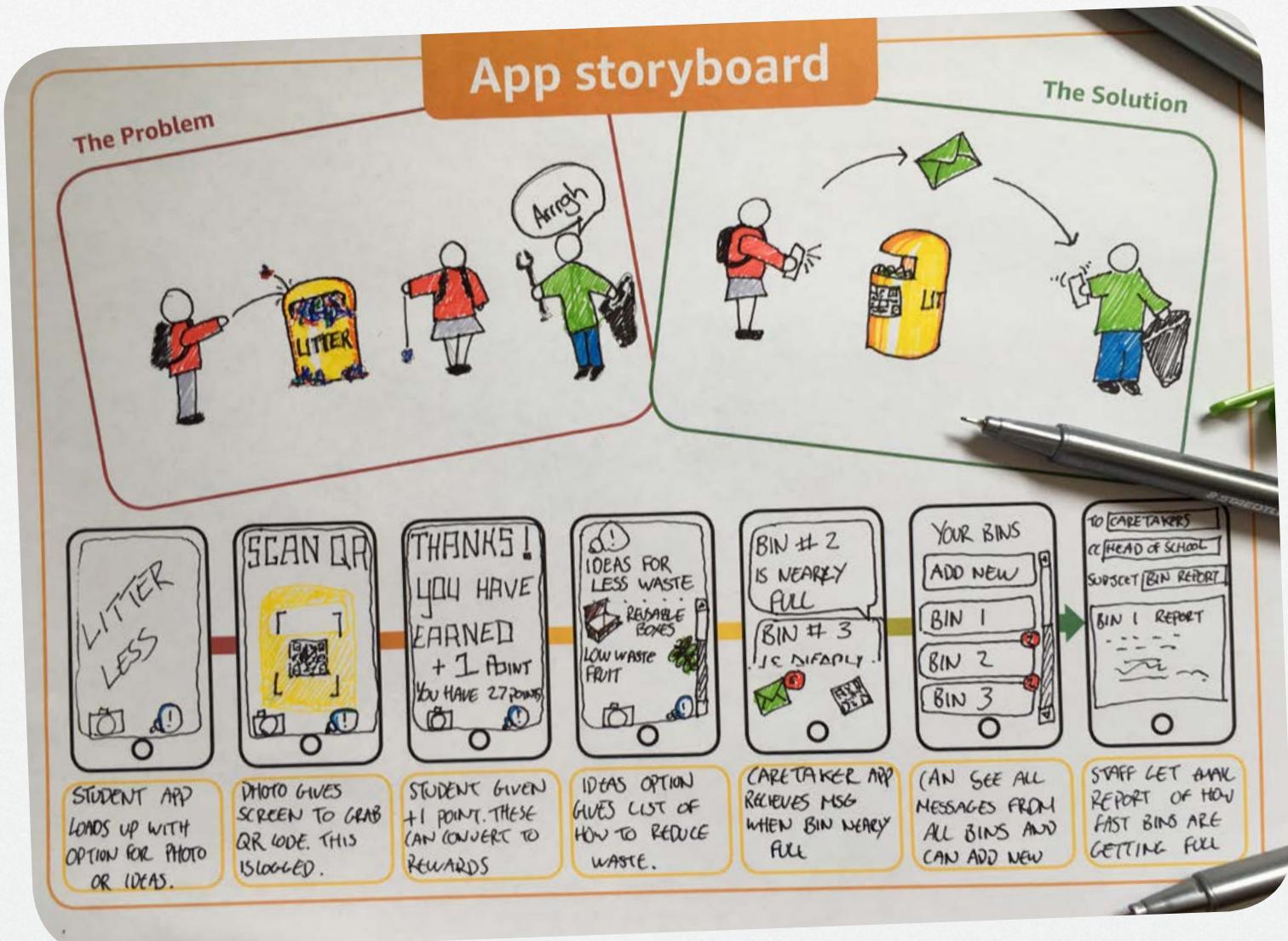
Session 1	—————	Find Your User
Session 2	—————	Find a Problem to Solve
Session 3	—————	Brainstorm Your Ideas
Session 4	Nov/Dec 2018	● Your AWS Get IT Bootcamp Hands on sessions with IT experts at AWS London office. Bring packs, scrapbooks and any other material you have.
Session 5	—————	Prototyping
Ambassador Visit	Jan / Feb 2019	● School visit to provide feedback on your idea and presentation in person.
Session 6	—————	Testing and Problem Solving
Entry Submission	5th April 2019	● Deadline for submitting material online.
Submissions reviewed	—————	Judging panel narrow down to final 10 App ideas.
Final at AWS London Summit	8th May 2019	● Final 10 submissions present to judging panel. Winner and best in category will be selected.

We hope you are as excited about this challenge as we are!

The following pack will help you design an amazing app that will make a real difference; over the next few pages are a few tips before you start...

Work towards a Storyboard

To inspire you, we have inserted below an example storyboard describing how an app works. You should start to build something like this for your app so keep this in mind when working through the following sessions.



Follow a Design and Build cycle

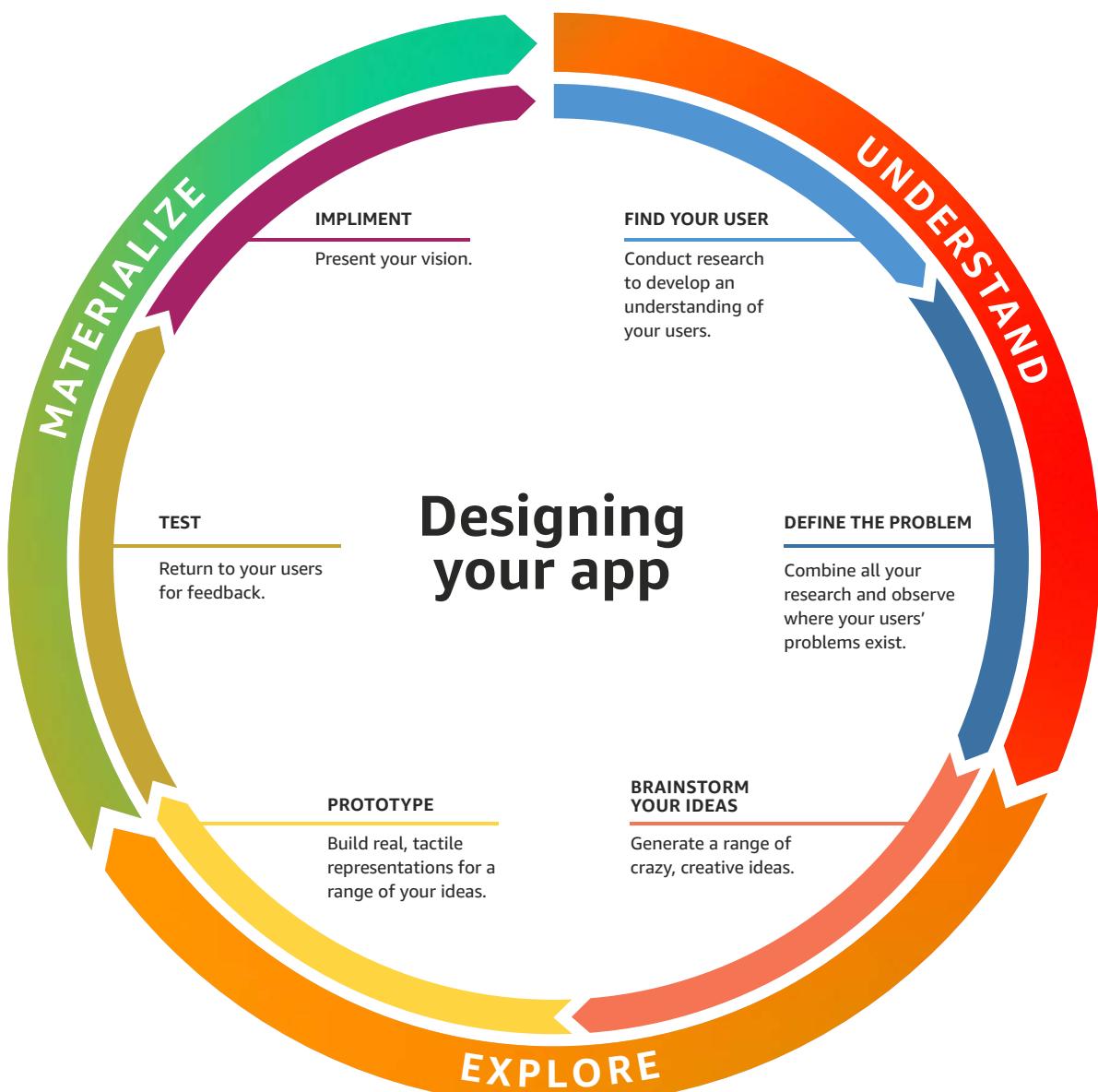
A great way to build, test and update quickly is to follow a design and build cycle.

There are a number of stages for developing software that almost all professionals follow. These stages include identifying your audience/user, finding the problem you plan to solve, brainstorming and researching the idea, prototyping, and test and development. This is the cycle we will be working through in this pack and challenge and is a method you can use for years to come.

TIP: You should print out the Design Cycle from the resources section and put it somewhere you can all see it. Use the diagram to remind you to learn fast, move faster and don't be afraid to make changes.



At Amazon, we like to move fast. We come up with ideas, test them quickly and make changes. We use the results to see if we need to improve the idea or drop it and start with a new one.



You will have Feedback and Support along the way...



In person:

The ambassador who launched the programme in your school will visit you in January or February to offer you feedback on your project so far.

Please prepare a mini presentation of your work so far. Peer to peer feedback is invaluable too, so perhaps organise to present to each other (if more than one team) or to the rest of the year group. The ambassador could also watch this and offer feedback.

Prepare any questions you have and really use the time you have with your ambassador!

Online:

You are able to submit your project for feedback once before the bootcamp, and once after the bootcamp (no later than the 5th April) via the Future Foundations website.



Before you start

Decide your team name
and app code name



Time to complete:
Approximately
5 minutes

You will need:

- ✓ Project pack
(either 1 per team or 1 each)
- ✓ Writing pens
- ✓ Device to time 60 seconds

Your team(s) should be 3-7 students and remember there must be at least 50% girls to qualify! To start with, two important choices need to be made. In the design process, the ability to make quick decisions is vital, so this is your first chance to practise. Give yourselves 60 seconds on each question and record your answers on the front of your project pack.

1. What will be your team name?

Think of a name that really represents you as a group.

 **60 seconds starts...NOW!**

Once you have a number of names written down, vote and the most popular is your name.

2. What is your app code name?

In the industry, all big projects have a cool code name so no one knows what you are talking about if they overhear you, so they can't steal that brilliant idea! Choose a name that has nothing to do with an app, like "Purple Banana" or "Tortoise"! This is not your app name; you will come up with this later, but a code to use when talking about your ideas.

 **60 Seconds starts.....NOW!**

Excellent. We have a team name and an app code name. Let's get started!



TIP: We recommend you have a scrap book or folder to keep track of and record your progress, so get it ready now!

Find your user



Time to complete:
Approximately
45-55 minutes

You will need:

- ✓ Session 1 data sheet
- ✓ White board or flip charts and pens
- ✓ Bold writing pens

Before you start thinking of ideas, it is crucial to find your target audience. These are the people that will be using your app.

Who do you want to help?

- If it's your school – who is it specifically?
- If it's your local community – can you specify a sector of it?
- Who do you feel inspired by?
- Which group of people do you feel drawn to helping?
- What needs do these groups have?

Brainstorm ideas on the white board or flip charts.

At Amazon, customers are at the centre of everything that we do. Here are some messages from our founder and CEO of Amazon, Jeff Bezos.

"I can tell you we've been doing this from the very beginning and it's the only reason that Amazon.com exists today in any form. We've always put customers first."

"We see our customers as invited guests to a party, and we are the hosts. It's our job every day to make every important aspect of the customer experience a little bit better."



RESEARCH!

If your app is going to meet the needs of these people you really have to understand them. If you are unsure what your users need or what they like, ask them!

Record your options in your Project Pack. As a group, select a final user group and write a short passage about who your users are, what they do and how you will get in touch with them.

At the end of this session you should have found the group you empathise with and want to help and know how you are going to talk to them.



TIP: Make sure you choose a user group that you have easy access to and feel passionate about helping. You will need their feedback in later sessions and are more likely to succeed if you feel really connected to them.

Find a problem to solve



Time to complete:
Approximately
45-55 minutes

You will need:

- ✓ Session 2 data sheet
- ✓ Bold writing pens
- ✓ White board or flip chart and pens

Identifying a problem to solve is a very important part of the process. Look at your user group and discuss what problems they have.

Think about big issues that affect everyone in the group. Are users creating too much waste for example? What is the cause of these issues? For inspiration take a look at examples from the Future Foundations Global Goals competition, and other websites in the resources section at end of this pack.

Try to keep asking yourself "Why" when deciding on a problem. Why is it a problem? Why hasn't it been solved already? Why does it need solving? Help your team to dive deep and understand root causes of the problems they identify.

It's better to have five people on one problem than one person on five problems.



- **Stay user focussed** – Why do people care? What is the user problem? Will they be happy if the problem is solved?

- **Keep asking why** – Get to the core problem. What am I hoping to achieve? Why is it a problem? Why do I want to fix it?

- **Achievable** – Don't try to solve more than one or two problems. Keep it simple. Keep it achievable.

- **Research** – Are you confident in a problem but don't know enough about it? Consider what research options are available to you to get the information you need.

- **Work fast** – Stay focussed. It's better to get something rough done on time, than something perfect that is too late.

You can investigate a few problems but select the one that you feel you understand the best and have the most access to. Record your ideas on the Session 2 data sheet.



TIP: Your team members have different skills and experiences – use everyone in the team to develop your understanding of the problem. You can look in to multiple problems before selecting one that you will take forwards.

At the end of this session you should have defined a problem you want to solve.

Brainstorm your ideas



Time to complete:
Approximately
45-55 minutes

You will need:

- ✓ Session 3 data sheet
- ✓ Bold writing pens
- ✓ Coloured dots / stickers (3 per team member)
- ✓ Whiteboard or flip charts (big enough to record all your ideas)

Now you have been inspired it's time to brainstorm as a team to find the solution to the problem you have defined, in the form of an app. This is the most important and exciting session! We will do this in two stages:



Stage 1 — (15 Minutes)

The aim of this stage is to generate a large quantity of ideas that potentially inspire newer, better ideas, which you can then filter and narrow down into the simplest, most practical, or most creative ones. Put your ideas on the white board or flip charts so that you can see them all at the same time.

- **Set a time limit:** create a deadline when this session needs to be completed.
- **Start with a problem statement and stay focused on the topic:**
 - What are you trying to achieve? Condense the main issue into a problem statement, a short "How Might We" sentence. For example: How might we reduce litter in our school to zero?
 - Stay focussed and keep coming back to this central statement
 - Designate a particular brainstromer to maintain the thread and prevent team members veering off course!
- **Encourage weird, wacky and wild ideas:** brainstorming is a creative activity, free thinking may produce some ideas that are way off the mark, but brainstorming is about drawing up as many ideas as possible which are then whittled down until the best possible option remains.
- **Aim for quantity:** The emphasis is on quantity, rather than quality at this stage so you have loads of ideas to choose from and you feel you have really explored the topic.
- **Build on each other's ideas:** One idea typically leads on from another; by considering the thoughts, opinions, and ideas of other team members during the brainstorming session, new insights and perspectives can be achieved.

session 3

Stage 1 — continued...

Be visual:

The physical act of writing something down or drawing an image in order to bring an idea to life can help people think up new ideas or view the same ideas in a different way.

One conversation at a time:

Brainstormers should focus on one point or conversation at a time so as not to muddy their thinking and lose sight of the thread or current objective.

Stage 2 — (up to 30 Minutes)

Hopefully you will now have many ideas!

You need to select the best ideas to work on as a team and bring to your bootcamp. Take five minutes to read all the ideas that are in front of you again. Think about which ones you like the most, and which you think will have the biggest impact. Then vote for your favourite three by sticking your stickers next to the ideas you like.

You can only vote for each one once!
No cheating! We are watching !

After everyone has used up their stickers, count up the votes and record the top three or four in your project pack and/or scrap book.

If you have a clear winner at this stage, you should record your main idea on a storyboard. Use the example on the first page as a guide. Use a mix of pictures and text to bring your idea to life! You may need extra time for this at home or in another session. Please also be aware that after the following sessions this might not be your final idea!

You now have a plan on how to fix your problem and ideas to get started with! Hooray!



TIP: If you don't have enough ideas, consider restarting the session or looking at one of your other problem areas from session 2.

AWS Get IT Bootcamp

**Each school is allocated a certain amount of spaces on a bootcamp.
The lead teacher will select who will represent your school at this event.
This may be one team or representatives from multiples teams
depending on how many teams your school has.**



Time to complete:
1 day at Amazon's London office
(exact timings and further details will be shared separately)

You will need:

- ✓ Team representatives
- ✓ Writing pens and colouring pens
- ✓ Project packs and any scrapbook
- ✓ Other material built so far
- ✓ Thinking hats, open minds and big ideas!

Your next step is to bring all your work to your bootcamp. There will be dedicated sessions where you will get to talk to industry experts and they will help you with your ideas and show you how they can be made into reality. When you arrive at your bootcamp, you should have completed the first three sessions and have recorded your progress in your project pack. If you have a scrapbook or other project material, bring that along too!

Oh, and be yourself!
Our experts are big kids too!



TIP: At the bootcamps, you will talk to real experts. Make sure you bring lots of questions and use this opportunity to learn as much as you can (not just for this challenge).

So, you have an idea that fixes a real problem? Great! You are an inventor!

Now it is time to look for help. To be successful, you need the best advice on how to build your app. At Amazon, we talk to our builders and techies.

What technology is available? How long will it take? Really? That long??

You will be glad you kept all of your ideas because occasionally you have to select a different idea once you have the advice you need.



The bootcamp will include:

How to select a killer app idea!

You have chosen three or four cool ideas but how do you know which one to choose? Which one will work best or have the biggest impact? This session will give you the skills to look at your idea(s) in a way that makes them easy to be successful.

What technology can be used to build your app?

Having the killer idea is one thing but how can it be built? AWS experts will take you through how to use pictures and writing to describe an app and how it works. This session will train you on how to be real app designers.

By the end of the bootcamp, you will have finalised your idea, understood how it will work and found out how it can be built.

Prototyping



Time to complete:
Approximately
45mins - 1hr 50min

You will need:

- ✓ Session 5 data sheet
- ✓ Colouring pens or pencils
- ✓ App pictures / stencils / stickers
- ✓ Printed copies of the storyboard template
- ✓ Spare Paper
- ✓ (Optional) Card, Glue, Scissors, printed flash card set from Project Pack

There are many ways to describe your idea. Amazonians write a short document called a Narrative. This describes the problem, the idea, what is needed to build the idea and any supporting information to justify why we should build it. We keep these short, 6 pages maximum (plus data sheets), but they must contain all the information needed to get the go-ahead to build.

All of Amazon's ideas, including AWS itself, have gone through this stage.



OK, you have your idea.

You understand how it can be built and what is needed to build it.

You should now be confident to tell the world about it.

As well as your storyboard, we would like you to build a document to describe your app. You will find this in your Project Pack (session 5 data sheet). Please also include other information to support and enhance your submission. For example:

- Clear information from your research
- Flash cards with example screen designs
- A video or presentation showing the problem, idea and what it could look like
- Any other creative presentation ideas you have

All these things will help you to get your idea across to the judging panel in the best possible way, so be as clear as you can - clean and simple with great information.

You can submit your idea at this stage but we recommend moving on to session 6 if you have time.



TIP: Including user comments is a great way to prove the value of your app and improve your chances. Include quotes and comments from your test group to back up your submission.

Testing and problem solving



Time to complete:
Approximately
45mins - 1hr 50min

You will need:

- ✓ Completed Session 5 data sheet
- ✓ Session 6 data sheet
- ✓ Writing pens
- ✓ Time with your focus group (4-6 helpful people from your target user group)

Now that you have developed your idea, it's time to test it out and make your last changes.

If you can, get feedback from your target audience on your storyboard and presentation. You might have to go back and revisit previous steps throughout the development process or your carefully made plans might need tweaking. That's all OK and a really vital part of the process. The important thing is to be flexible and respond to feedback about how you can improve.

Testing and improving is a critical part of building your idea. When you launch your app, users may not tell you what they think. To get feedback on your idea before you launch, you can build a test group of users called a Focus Group or Alpha testers.



TIP: When you ask your test group for help, set a deadline for feedback so that they know when you need their thoughts back. This will help you get all the comments back at the same time.

At Amazon, we like to get past this stage quickly. That means building what we call a "Minimum Viable Product" or "the quickest possible way to prove the idea". Until you get your idea in front of your first users, you will not know what they think of it. We try to do this as early as we can so there is time to make changes. Select a small group of users that you know will be honest and give you feedback. Then make improvements, and do it again.



Here are some ideas to help you select a good focus group.

- Friendly users that are happy to test and feedback
- People that experience the problem you are trying to solve
- People that have different skills or experiences
- People that you can talk to often
- People that are good at describing what they see

Once you have focus group feedback, you can make the changes to your idea and run through the cycle again. You should aim for two or three cycles of testing.



Congratulations!

You are now ready to present your app!

How to submit your idea

Please visit the Future Foundations website to submit your app idea into our challenge, or click [here](#). You should try and complete all the sessions in the challenge pack before submitting. The deadline for submission is the **5th April 2019**.

Your online submission will consist of:

1. Your team name

2. Your app name and a short description of your app

3. Your app idea project. Make sure you include:

- The problem
- The idea
- What is needed to build the idea
- Any supporting information to justify why it should be built

How you present your app idea is open to the team but it should cover these points as a minimum as this is what the judging will be based on.

Remember to keep it clear and concise – a two page maximum app narrative, plus data sheets and any other supporting material. These could include any research, workings or idea sheets. You are welcome to submit up to 5 photos of any material that is on paper.

4. Your completed storyboard

AND/OR

5. A digital submission either as your full presentation explaining your app, or as a supporting video. Please make sure videos are no longer than 3 minutes.



TIP: Add up to 5 other documents or photos that you feel will enhance and support your submission – the more creative the better!

Judging criteria

- Your team must be between 3 and 7 students and be at least 50% girls
- Your app idea must tackle or solve an issue experienced by your school or local community
- Your submission should demonstrate your connection to this issue
- Your app idea must demonstrate long term benefits as well as sustainability
- Your submission should demonstrate what you have learnt about technology through taking part in this programme e.g. show that you have worked through the sessions and design cycles

What happens next?

Once you have submitted your idea, a panel at AWS will review all the applications and select 10 finalists. These 10 finalists will present their projects at the AWS Summit on the 8th of May and the winner will be announced on the day!

All participating schools will be invited to select students to attend the AWS Summit where they will have the opportunity to learn about the latest cloud technologies and hear from the UK's leading tech experts.

Prizes and recognition

- All teams that attend the bootcamp will receive a special AWS goodie bag
- All participating schools will have the opportunity to send a select number of students to the AWS Summit at the Excel Centre on May 8th
- 10 finalist teams will be invited to present their ideas at the AWS Summit
- There will be three 'highly commended' prizes awarded at the AWS Summit
- The winning team will have their app made be AWS
- All participants (named in submissions) will receive a certificate confirming the completion of the programme Participating students have the opportunity to apply to become peer-ambassadors within their school for the programme next year

Resources

The following links are examples of resources that could help you with your project. Further resources can be found on our programme webpage.

Future Foundations AWS webpage:

www.future-foundations.co.uk/awsgetit

Examples of project ideas:

www.globalsocialleaders.com/gg-projects

www.foodrecoverynetwork.org

Example apps:

www.olioex.com

www.tootoot.co.uk

www.appsforschools.org.uk

www.worrinots.com

www.mindmoose.co.uk

Articles:

www.dzone.com/articles/5-tips-for-building-a-successful-app-with-design-t

www.smartbrief.com/s/2018/01/school-taps-mobile-app-curb-food-waste

www.candgnews.com/lifestyles/school-uses-app-to-cut-down-on-food-waste-10643

www.icslearn.co.uk/blog/posts/2018/may/top-10-studying-apps-for-high-school-students-2018/

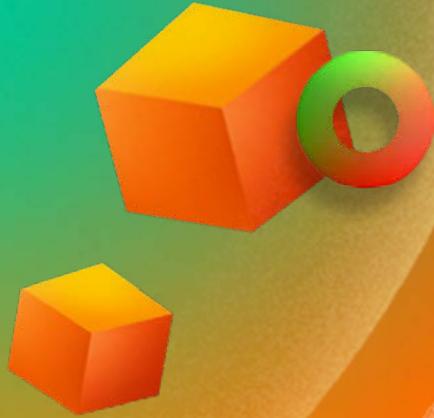
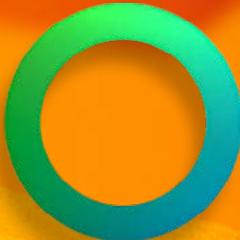
news.stanford.edu/2015/07/28/learning-masters-tech-072815

www.eschoolnews.com/2014/07/11/bully-apps-education-329/2

We are so excited to see the brilliant ideas and presentations you create, and we hope that by taking part in this programme you have been inspired to get in to IT.

If you have any questions please refer to the **Future Foundations website**, or email: **lucy.moses@future-foundations.co.uk**

Good Luck



AWS Get IT

Project Pack

Team Name

App Code Name



aws | Get IT



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Session 1 — Data Sheet

What target audiences have you thought of?

Which audience have you selected?

Describe your audience. Why have you selected them?

Session 2 — Data Sheet

What problems affect your target audience?

Which 1 or 2 of the problems above do you want to solve?

Research and record some information about these problems here:

Session 3 — Data Sheet

Copy your ideas brainstorm here:

Which are your best ideas? Include your reasons:

Session 4 — Bootcamp Checklist

Your next step is to bring all your work to your bootcamp. There will be dedicated sessions where you will get to talk to industry experts and they will help you with your ideas and show you how they can be turned into reality. When you arrive at your bootcamp, you should have completed the first three sessions and have recorded your progress in your project pack. If you have a scrap book or other project material, bring that along too! Oh, and be yourself! Our experts are big kids too!

- Team representatives
- Writing pens and colouring pens
- Project packs and any scrapbook
- Any other material built so far
- Thinking hats, open minds and big ideas!

Record your notes on this page and the next page.

BOUTCAMP NOTES

BOOTCAMP NOTES Continued...

Session 5 — Data Sheet

– Prototype / Narrative

Storyboard – Use the storyboard template from this pack.

App Narrative:

As a practice for your final submission, write a one page document to describe your problem and how your app will help. Your final submission can be up to two pages. A successful narrative helps people to quickly understand the project and what it does. After reading your narrative, people should be able to say if they think your idea is going to work.

TIP: refer to sessions 1-3 in this project pack to help you with your information. Think about what you learnt at the bootcamps too!

A typical structure for a one page narrative has a title and four paragraphs.

- 1) The problem and recommendation summary.
- 2) Further explanation of the situation.
- 3) The root cause and solution.
- 4) Full recommendation and plan.

Here are some ideas to cover in your narrative:

- What is the apps audience? How many people?
- What is the problem that the app is for?
- What do we know about the problem?
- How does the app help with the problem?
- A description of a typical experience with the app...
- How many users will the app have?
- Does the app require anything other than a phone or tablet?
- Is the app simple or complex to build?
- What other considerations are required for the app?

Example Narrative

Project Title: LitterLess

At school there is a problem with litter. After break and lunch time the bins outside are always full. Litter falls on to the floor and people drop litter all over the place as there is nowhere to put it. We will fix this problem by helping people to tell the school which bins are getting full. We will also make it easy for people to understand how to reduce waste which will also reduce the litter. We aim to reduce the amount of litter by 100% and the amount of litter picking time needed by caretakers, by 20 hours per month.

Students behave and study better in a tidy and clean environment. The school aims to keep all the outside areas clean by providing six large bins for students to put their waste. Students bring snacks and lunch into school to eat at break and lunchtime. The snacks are crisps and snack bars that all come wrapped in plastic. Students are expected to throw their waste in the bins but this does not always happen. Each bin is emptied once at the end of the day. The amount of litter in the outside areas of the school has got to a point where the school looks scruffy and students are not taking as much care with their behavior or work as they should.

Students are allowed to bring snacks from home to eat at school. There are only six bins outside the school building and only two in the main playground. With two break times plus lunch, 1000 students at the school, and students spending most time around just two bins, the bins can't handle up to 1500 pieces of litter per day. The caretakers have said that it takes them an extra hour every day to pick up the litter from the floor. It would save the caretaker's time if they knew when the bins were nearly full so that they could empty them during lesson time. They would also like to know which bins fill up first so that they can put extra bins in those areas if it would help. By adding a barcode or QR code to each bin, students could use the LitterLess app to scan a bin once it is nearly full. The app would send a message to the caretakers to empty the bin as soon as they can.

The LitterLess app will be a mobile phone app and have two modes: one for Caretakers and one for students. The Caretaker mode will allow them to print out QR codes that can be attached to each bin. When a QR code is scanned, the information about which bin and what the time is will be stored on a computer. A message will be sent to the Caretakers to empty the bins when the bin is reported as nearly full a certain number of times. At the end of the day, a report of which bins were filled and how quickly will be sent to the caretakers. The student mode will allow students to scan the bin QR codes quickly and report back to the Caretakers. It will also include information about what snacks have less wrapping and are healthy. This will help to reduce the waste in the first place. By reducing waste and stopping bins from overflowing, the school will be a cleaner place to study as well as helping the environment.

Session 6 — Data Sheet

– App Feedback Form

App Name:

App Code Name:

App Test number:

Name of user:

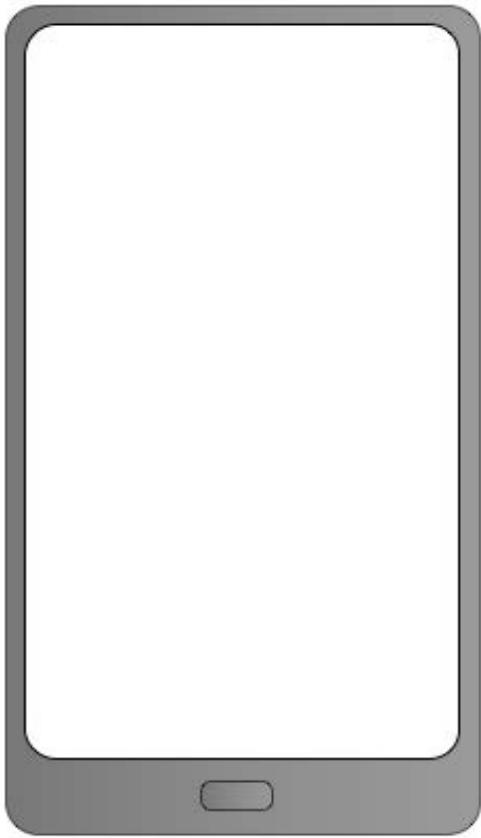
User feedback comments:

What do you think the feedback means?

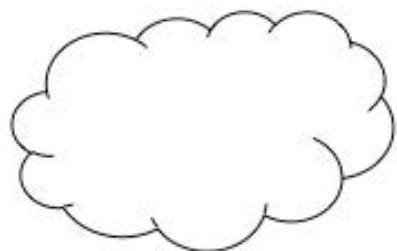
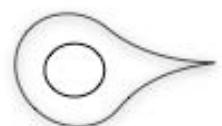
What needs to be done?

Templates

If you need help with typical app shapes, print and cut out these to use in your scrapbook or presentation.



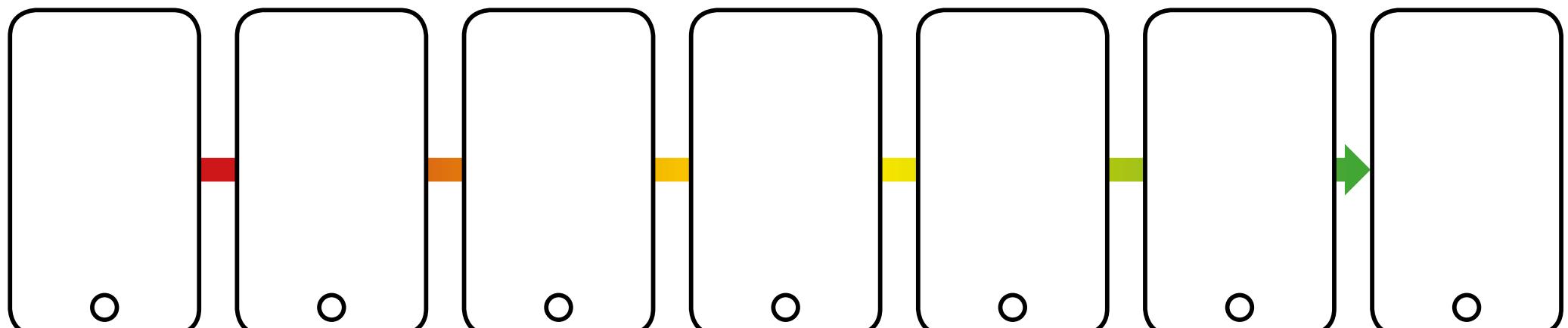
Templates



App storyboard

The Problem

The Solution



Get IT App Design Cycle

Designing your app

